

ANATOMY OF A PATENT

The process of preparing, obtaining, and protecting a patent is presented by following the history of the issuance of a patent to the Schlage Lock Company. The details of the application, actions, amendments and infringements were obtained.

1976 Written by Peter R. Ciriscioli, Stephen D. Cross, and Yuen-Cjen Yong, students at the University of California, Davis, under the supervision of Professor J. M. Henderson and from the files of Lothrop & West, Attorneys at Law, San Francisco, California.

The cooperation of Mr. Ernest Schlage and Mr. H. Karl Grauman of the Schlage Lock Company, and Mr. Marcus Lothrop, Attorney at Law, is gratefully acknowledged.

An Engineering Case Study

ANATOMY OF A PATENT

Peter R. Ciriscioli
Stephen D. Cross
Yuen-Cjen Yong

Written under the supervision of
Professor J. M. Henderson
and from the files of
Lothrop & West
Attorneys at Law
San Francisco, California

University of California
Davis, California

June 1976

ACKNOWLEDGMENT

The authors want to thank Mr. Ernest Schlage and Mr. H. Karl Grauman of the Schlage Lock Company for their time and assistance and we especially appreciate the participation, support and interest of Mr. Marcus Lothrop, Attorney at Law.

This case study was written under the supervision of Professor J. M. Henderson of the University of California, Davis, California.

ABSTRACT

The process of preparing, obtaining, and protecting a patent is presented by following the history of the issuance of a patent to the Schlage Lock Company. The details of the application, actions, amendments, and infringement were obtained from the files of Mr. Marcus Lothrop, the attorney who handled the application.

1. INTRODUCTION

At one time or another almost everyone gets what they consider to be a good, salable idea. Whether it is an orange juicer or a solar energy collector we have all wondered about the possibility of getting a patent. Engineers probably have a greater need to know about patents than the weekend inventor, because they may eventually be dealing with them in a professional capacity. What is a patent? How do you go about getting one? How much would it cost? What is it worth? What is a patentable idea?

The purpose of this case study is to familiarize the reader with current patent practices. The various steps involved in getting a patent will be discussed with the aid of an actual patent application.

1.1 Patent Law

The American patent system began in 1790 when President George Washington signed the first patent bill. Based on English patent laws, the new bill defined what was patentable, who could get a patent, and how he should go about getting it. Although there have been numerous changes and additions to patent laws, the basic ideas behind the patent are the same as when it began in England in the early 1500's.

The King of England began the patent system to promote the development of industry in his kingdom. Then, several other European countries had begun making improvements in their manufacturing processes, and so produced better products. The improvements were often kept

secret, so the English King decided to reward anyone who could bring a new or better technique or idea into England. The reward was the granting of a "letters patent", (patent meaning open or public). This was a public declaration that the "inventor" should have the exclusive right to use his new technique in the English realm. Some important aspects of this first patent law, which are still true today, are first, to be patentable, the embodiment of an idea must be inventive, new and useful, and second, the patent is granted for a definite period of time, the public getting the invention free after that time.

Under the present patent laws, there are usually four steps involved in getting a patent:

1. File an application with the Patent Office
2. The examiner reviews the application and returns the first action (list of objections)
3. The application is amended to meet the examiner's recommendations
4. The examiner either issues the patent or disallows it.

1.2 The Patent Case

The case which we will use to illustrate the patent process is one of the many which have been issued to the Schlage Lock Co. In December 1968, Marron Kendrick, Chairman of the Board for Schlage Lock Co., was talking with some friends over lunch. The discussion turned to locks as one of the men was complaining what a nuisance it was to use a key to throw a dead bolt. Each morning as he left for work he would have to pull out his keys to throw the bolt on his front door. There was a little discussion about what could be done, and Mr. Kendrick proposed the following idea: why not have a knob on the outside of the lock which could be used to throw the

bolt without the need of a key, but would not retract the bolt. With this simple but new idea he approached Ernest Schlage.

Mr. Schlage is presently Vice-President of the company, and Head of the Research Center where he is constantly involved in developing new products. Through the years, Mr. Schlage has collected numerous patents on locks and associated hardware. Mr. Schlage realized that Mr. Kendrick's idea would be a natural addition to their present type G lock. Because of the G lock configuration, the knob used to throw the bolt would fit easily into the existing structure. A prototype was designed and built, and the effort to get a patent begun.

Schlage Lock Co. keeps an impressive file on most patents and public disclosures relating to locks. Many actual patents dating back to 1833 are kept on file for quick reference in patent matters. Each Tuesday, the Patent Office puts out an Official Gazette, which is a book describing all patents granted during that week. Exhibit 1.1 is a typical page from the Gazette. One of the people at Schlage Lock goes through the book with the help of a coding system and records any information associated with locks. This, too, is kept on file. The extensive files minimize the need for costly patent searches by outside individuals.

Having conducted his own patent search, Mr. Schlage contacted their patent attorney, Marcus Lothrop. Mr. Lothrop graduated from Stanford in 1924 with a degree in Mechanical Engineering. He started as a patent draftsman in 1924 and attended Oakland College of Law, graduating in 1940 and passing the California Bar in 1941. Mr.

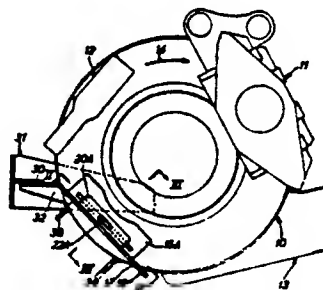
1538

OFFICIAL GAZETTE

NOVEMBER 26, 1974

flange over at least part of their length, operating means associated with the corresponding heat-collector shoe and supported by said flanges, said operating means comprising a substantially V-shaped plastic blade having a curved central

tion of a radius greater than the perpendicular distance between said axis and said bottom.



portion engaged in an opening in the corresponding said flange for the retention of said blade, each said blade having two lateral wings elastically supported against the associated heat-collector shoe for urging said shoe toward said disc.

3,850,268

SELF-LOCKING DISC BRAKE MECHANISM

Michel Guettler, Ruell-Malmatien, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt and Automobiles Peugeot, Paris, both of, France

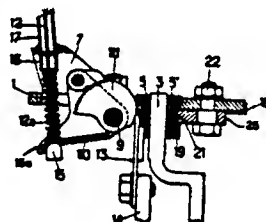
Filed July 10, 1973, Ser. No. 377,935

Claims priority, application France, July 19, 1972, 72.26083

Int. Cl. F16d 55/46

U.S. Cl. 188—72.2

2 Claims



1. A self-energizing brake mechanism for braking a rotatable disc, comprising a floating supporting member freely movable in a direction perpendicular to said disc only, a lever arm rotatably mounted on said supporting member, a first cam rotatably mounted on said supporting member, connecting means for locking said first cam to said lever arm in an adjusted angular relation, a first braking element slidingly mounted on said supporting member for movement perpendicular to said disc only and including resilient means for biasing it away from said disc, the surface of first braking element opposite to said disc being engagable with said first cam so as to be brought into engagement with a face of said disc when said first lever arm is operated, a second braking element mounted on said supporting member on the opposite face of said disc for limited movement tangentially of said disc, and for movement perpendicular to the disc, said second braking element having in its face opposite to said disc a flat bottom recess and including resilient means for biasing it to a position substantially midway of said limited movement, and a second cam rotatably mounted on said supporting member on an axis located in a diametral plane of said disc, said second cam having a cam surface engaging the flat bottom of said recess, said cam surface having a generally curved configura-

1. In a slack adjusting device comprising a pull rod having a threaded portion, a housing and adjusting nut interconnecting said pull rod and said housing and having threads engaging said threaded portion, relative rotation between said nut and said rod being produced upon the application of a force to said rod directed longitudinally thereof thereby permitting relative movement of said rod and said housing longitudinally with respect to each other, and arresting means for arresting said relative rotation but permitting a predetermined amount of longitudinal relative movement of said rod and said housing when said relative rotation is arrested, the combination thereof with of braking means in addition to said arresting means and actuated by at least one of said rod, said housing and said nut upon occurrence of said predetermined amount of relative movement for opposing said relative rotation between said rod and said nut, the force applied by said braking means to oppose said relative rotation being at least equal to 50 percent of the force required to prevent said relative rotation in the absence of said arresting means.

3,850,270

LIVE RAIL AND SHOE CONSTRUCTION

Wili Hühmann, Kamen, Germany, assignor to Paul Vahle KG, Kamen, Germany

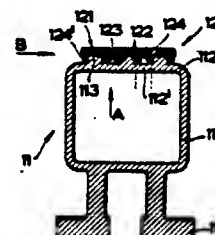
Filed Aug. 14, 1973, Ser. No. 388,095

Claims priority, application Germany, Sept. 11, 1972, 2244492

Int. Cl. B60m 1/34

U.S. Cl. 191—29

5 Claims



1. The combination of a rail and slide surface for the supply of current to movable current consumers, comprising a metallic base (11) forming a live rail and a slide surface (12) fitting with the base and arranged thereon, of a wear-resistant metal, in which on the surface of the base facing the slide surface there are provided a plurality of dove-tail shaped projections (113) extending along the length of the base, the slide surface having U-shaped recesses (122) in the contact surface which grip said projections, the flanks of the recesses engaging against the corresponding flanks of the projections,

Lothrop has worked on many patents, some of which include the original reflecting tail light glass for automobiles (still used today), automobile side window with vent "wing", and extensive work with the Doble Steam Automobile Company. Mr. Lothrop has been associated with Schlage Lock Co. as a patent attorney for 30 years.

2. FILING THE APPLICATION

The first step in the pursuit of a patent is the preparation and filing of a patent application. The patent application consists of the oath (or declaration), power of attorney (optional), petition and also portions referred to as the Description, Drawings and Claims. As the patent attorney, it was Mr. Lothrop's duty to prepare and file the application so that both his client and the Patent Office were satisfied. Since a number of people are involved (patent lawyer, inventor, draftsman, inventor's company) and because of the varied nature of the different portions of the application, a patent application often takes a great deal of time to prepare. Fortunately, while some portions of the application are "in the works" e.g. drawings at the draftsman, other portions can be worked on simultaneously.

2.1 Assignment of Rights

It is now common practice for any engineer or scientist to sign a "patent agreement" when he begins employment with a company. The "patent agreement" is a legal statement that the "inventor" will "assign the rights" of his invention to his company. The form of the agreement varies greatly between companies and employees. Financial arrangements between the company and the inventor can range from nothing to a substantial portion of the invention's value. The assignment of rights is a document which may be used so that the Patent Office and the public will know who owns the invention.

In this case, the inventor, Marron Kendrick, assigned the "properties" of his invention to Schlage Lock Co. in the presence of a notary public. See Exhibit 2.1.

2.2 Oath

In addition to "who owns the invention", the Patent Office requires an oath stating that the inventor is "the original, first and sole inventor of the invention". This oath was executed before a notary public.

2.3 Power of Attorney

The signing of a "power of attorney" is not necessary in a patent application. However, the "power of attorney" appoints someone (usually a patent attorney or agent) to act on the inventor's behalf and is necessary if the patent application is prepared or revised by persons other than the inventor.

Exhibit 2.1.ASSIGNMENT AND AGREEMENT

MARRON KENDRICK, of Atherton, California, called ASSIGNOR, warrants and represents that he has made a certain invention called EXTERIORLY OPERABLE LOCK BOLT identified by his application for a United States patent, executed by him concurrently herewith, said invention being the basis of various rights, procedures and documents and together with them called PROPERTIES, the term including the invention itself, improvements of it heretofore or hereafter made or acquired by ASSIGNOR, rights to make, use and sell said invention, and proceedings concerning it (for example: searches, interferences, litigation, negotiations, and original, continuation, divisional, substitute, reissue, extension and confirmation patent application and patents) both in the United States and in foreign countries.

For lawful CONSIDERATION, receipt of which by ASSIGNOR is hereby acknowledged, ASSIGNOR hereby sells, assigns, transfers and conveys all the right, title and interest in and to said PROPERTIES to SCHLAGE LOCK COMPANY, a corporation, its assigns, successors and other legal representatives, called ASSIGNEE, and agrees at the request and expense of ASSIGNEE to execute other documents consistent with ASSIGNEE's ownership, use and enjoyment of said PROPERTIES and helpful to effectuate this transfer, and to assist in ascertainment of facts and production of evidence relating to said PROPERTIES.

The benefits of this assignment and agreement shall inure to ASSIGNEE and shall be binding upon ASSIGNOR, his heirs, assigns and legal representatives.

Exhibit 2.1 (cont.)

In witness whereof ASSIGNOR has executed and delivered this
instrument this 30th day of April, 1969.

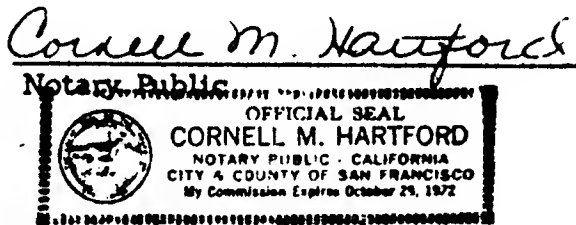
Marron Kendrick
Marron Kendrick, Assignor

STATE OF CALIFORNIA)

COUNTY OF San Francisco) ss.

On this 30th day of April in the year one thousand
nine hundred and sixty-nine, before me, a Notary Public in and for the State
of California, residing therein, duly commissioned and sworn, personally
appeared MARRON KENDRICK, known to me to be the person whose name is
subscribed to the within instrument, and acknowledged to me that he exe-
cuted the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my
official seal, the day and year in this certificate first above written.



RECORDED
INDEXED

MAY - 5 1969

Witness
IN WITNESS OF MY HAND

Being duly sworn, I, MARRON KENDRICK, depose and say that I am a citizen of the United States and a resident of Atherton, County of San Mateo, State of California; that I have read the foregoing specification and claims and I verily believe I am the original, first and sole inventor of the invention in an EXTERIORLY OPERABLE LOCK BOLT described and claimed therein; that I do not know and do not believe that this invention was ever known or used before my invention thereof, or patented or described in any printed publication in any country before my invention thereof, or more than one year prior to this application, or in public use or on sale in the United States more than one year prior to this application; that this invention has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months before this application; and that no application for patent on this invention has been filed by me or my representatives or assigns in any country foreign to the United States, except as follows: None

And I hereby appoint Lothrop & West, Registration No. 18,073, a firm composed of Marcus Lothrop and Robert G. West, 1150 Alcoa Building, San Francisco, California 94111, my attorneys and agents with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith.

Exhibit 2.2

Wherefore I pray that Letters Patent be granted to me for the invention described and claimed in the foregoing specification and claims, and I hereby subscribe my name to the foregoing specification and claims, oath, power of attorney and this petition this 30th day of April, 1969.

INVENTOR:

Marron Kendrick

Post Office Address:
398 Walsh Road
Atherton, California

STATE OF CALIFORNIA)
COUNTY OF San Francisco) ss:

Before me personally appeared MARRON KENDRICK, to me known to be the person described in the above application for patent, who signed the foregoing instrument in my presence, and made oath before me to the allegations set forth therein as being under oath, on the day and year aforesaid.

Cornell M. Hartford
Notary Public



OFFICIAL SEAL
CORNELL M. HARTFORD
NOTARY PUBLIC - CALIFORNIA
CITY & COUNTY OF SAN FRANCISCO
My Commission Expires October 21, 1972

Exhibit 2.3

Disclosed in the W. R. Schlage patent is a single plunger lock unit, known in commerce as Schlage Lock Company's "B" lock unit, provided with a reciprocable dead bolt movable between projected and retracted positions by an exterior actuator and an interior actuator.

Although both of these types of lock units have had commercial success, it has developed that some users do not take advantage of the security available by throwing the dead bolt from the exterior side, because this operation requires the finding and insertion of a key and key manipulation. That is, on leaving a room and closing the door from the outside, the user refrains from inserting his key into the exteriorly available lock plug and from rotating the key and plug so as to project the long lock bolt for full security. Many users consider this key use an annoyance and do not take advantage of the extra lock bolt protection.

It is therefore an object of the invention to provide on the exterior of the lock unit a means readily operable without a key to make the maximum security of the lock unit quickly and more easily available.

Another object of the invention is to provide, either in connection with the high security lock mentioned or with other lock units, a lock bolt which can be projected exteriorly with or without a key but which can be retracted exteriorly only with an appropriate key.

2.4 Petition

The "Petition" is a request by the inventor to the Patent Office that a patent be granted to his invention. It is a statement of his formal request for a patent.

In this case, the oath, power of attorney and petition are all contained on one document. See Exhibit 2.2

2.5 Objectives

An important aspect of the application are the objectives. Set off by the statement "An object of the invention", the "objects" are the inventor's statement of the problem that his invention solves. See line 20 of Exhibit 2.3

2.6 Description

The main purpose of the Description is to provide a complete written representation of the device and its actions. According to Mr. Lothrop, "The Description is that part which particularly points out, in legal language, what the invention is. That's been expanded to mean ..., in a mechanical case, what physically is involved and what its mode of operation is as well as its result." For example, in Exhibit 2.4, lines 4 through 11 describe the physical make-up of the lock chassis.

2.7 Drawings

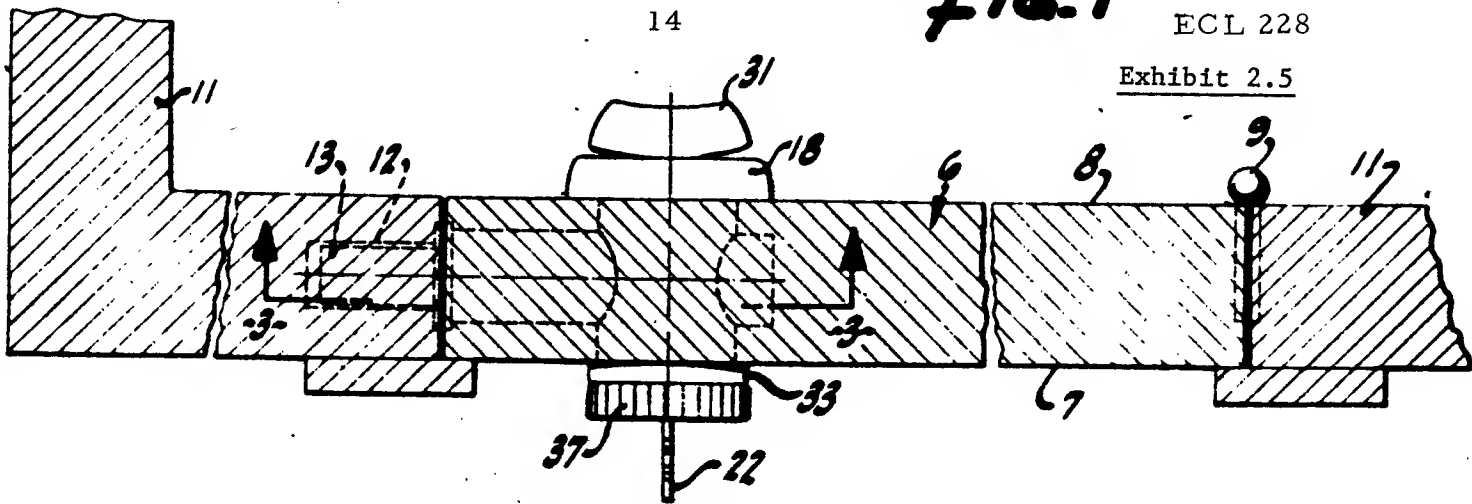
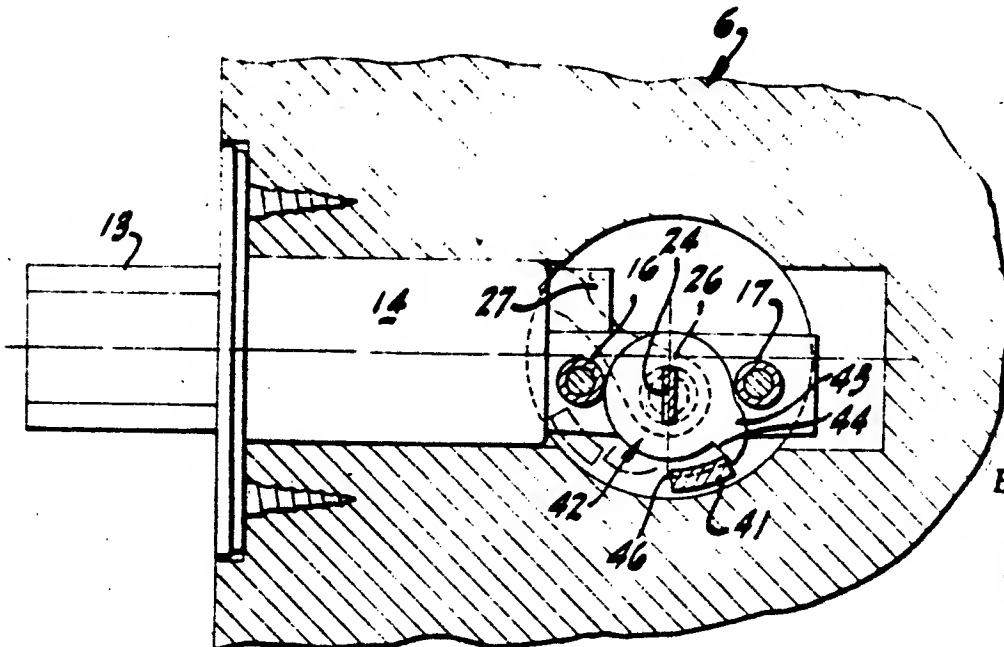
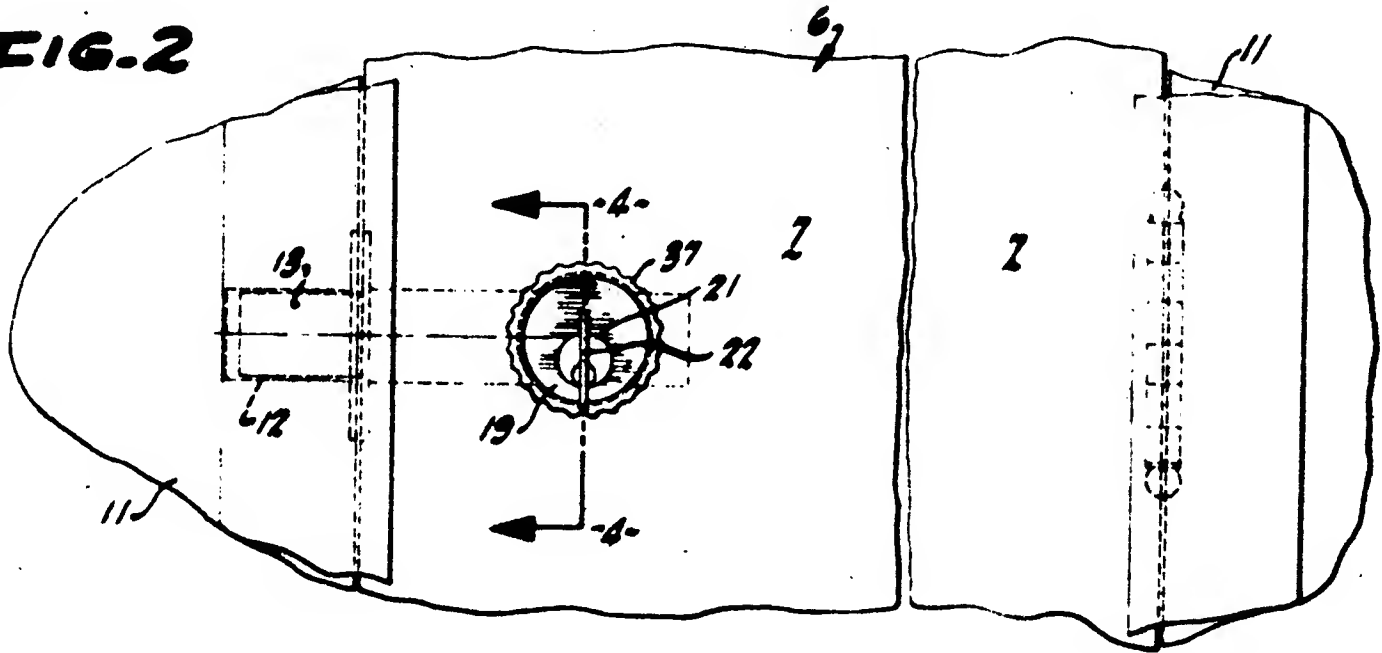
The drawings provide a visual representation of the material contained in the Description. Mr. Lothrop states, "The patent law requires that where the case admits of it, a mechanical drawing showing the device is required." A feature of the drawings are the very stringent format requirements, (e.g. shading, line

Exhibit 2.4 .

The bolt 13 is mounted on a chassis 14, or support, or base or frame, the bolt construction preferably being comparable to that shown in the above-identified W. R. Schlage patent. The chassis 14 is approximately symmetrical about a central plane and can be considered a bilateral. The chassis has a number of stationary parts associated to support and mount the moving parts of the lock unit and includes post and screw connectors 16 and 17 passing through the door panel to relate to an inside escutcheon (correction) 18 and to an outside lock mechanism 19 (Figure 4), the exterior of which is generally circular-cylindrical about an axis 20.

In the lock mechanism 19 there is a rotatable plug 21 designed to receive a key 22 and having a lost motion connector 23 joining the plug (correction) 21 to a flat driver bar 24 extending in the direction of the axis 20. An actuating lever 26 (Figure 3) has one end non-rotatably connected to the driver bar. The other end of the actuating lever 26 engages an extension 27 of the bolt 13. The extent of travel of the lever 26 is approximately one quarter of a turn during travel of the bolt between the fully projected position thereof and the fully retracted position thereof.

As disclosed in the above-mentioned Tornoe et al. patent, an over-center spring yieldingly urges the bolt 13 into either its fully projected position or its fully retracted position after the bolt has passed the half-way point in either direction. Since the connector 23 includes lost motion and the lever 26 requires a fractional turn for full operation, rotation of the key 22 for a large part of a turn is effective to move the bolt between fully projected and fully retracted positions. There may be additional lost motion connections in the lock unit, but the motion relationship of the rotatable plug 21 and of the lock bolt 13 is usually approximately as stated.

**FIG. 2****FIG. 3**

INVENTOR
MARRON KENDRICK

BY

Lothrop & West
ATTORNEYS

Exhibit 2.6

WHAT IS CLAIMED IS:

1. An exteriorly operable lock bolt for mounting on a panel having an interior side and an exterior side comprising a chassis adapted to be connected to said panel, a bolt mounted on said chassis to project and retract, first means on said chassis for projecting and retracting said bolt, (correction: said first means including a lock mechanism having an axis, a driver bar extending from said lock mechanism in the direction of said axis, means for connecting said driver bar and said bolt), and second means assessible on the exterior side of said panel for only projecting said bolt.

2. An exteriorly operable lock bolt as in claim 1 in which axially extending bar is related lever
~~said second means is connected to said first means~~ by a lost motion connection.

3. An exteriorly operable lock bolt as in claim 1 in which said ~~first means operate in one direction for projecting said bolt and in the opposite direction for retracting said bolt and said second means includes a stop for limiting the rotation of said turn piece operates in said one direction for projecting said bolt.~~

4. An exteriorly operable lock bolt as in claim 1 in which said second is , an annular escutcheon ring surrounds said ~~first means includes~~ a rotary member/and said second means includes lock mechanism and has an opening in the annular portion thereof, a movable part having a lost motion engagement with said rotary member.

X. An exteriorly operable lock bolt as in claim 1 in which said second means is a finger operable device.

6. An exteriorly operable lock bolt as in claim 1 in which said for connecting member
~~first means/~~ includes a lever / mounted to rotate on said chassis through axially extending is approximately a quarter of a turn and said ~~second means includes a bar /~~ into engagement mounted to move on said chassis and engageable with one side only of said lever.

Exhibit 2.7

May 2, 1969

File: 5294-448

Commissioner of Patents
Washington, D. C. 20231

Sir:

Enclosed herewith is an application for United States Letters Patent on an exteriorly operable lock bolt in the name of Marron Kendrick for filing.

The applicable fees are as follows:

Basic Fee	\$65.00
Additional Fees:	
Total number of claims in excess of 10, times \$2	2.00
Number of independent claims minus 1, times \$10	<u>30.00</u>
	\$97.00

Faithfully yours,

for
Lothrop & West

ml/sd

Enclosures:

oath, power of attorney and petition
specification and claims
drawings (4)
filing fee

thickness, etc.) as described in the "Guide for Patent Draftsmán" published by the U. S. Pat. Off. An example of the drawings is shown in Exhibit 2.5.

2.8 Claims

The claims are the most important part of the application. Mr. Lothrop indicates, "The object of the claims is to comply with the law and specifically to define what this particular invention is as distinguished from all other inventions and all other somewhat related technologies... They're analogous to the meets and bounds description of a piece of real property as it appears in a deed". Since a patent can only be infringed by violating its claims, Mr. Lothrop and his clients concentrate the main portion of their efforts towards making the claims as "good" as possible. Mr. Lothrop states"... I want to get for my client, or for the inventor, as much of his invention as he's entitled to have. I do not want to leave anything behind or omit anything". One way of accomplishing this goal is keeping the language "as general as possible". As shown in Exhibit 2.6 claim #1 effectively defines the structure of the device. This is an example of an "independent" claim while claims 2-5 refer to information contained in claim 1 and are therefore dependent. Dependent claims are variations on the theme brought out in an independent claim.

The language of the patent application, and specifically the claims, is typical of so-called "legalese". In an explanation of this language Mr. Lothrop offers, "Apart from what's required by the law and apart from what the text writers say, apart from what

the professors teach, in practice you have in mind several things. One, that a patent application and the resulting patent, if you're lucky, is addressed to a large number of different people. One, it is addressed to the general public...educated people, uneducated people, technicians, nontechnicians, anyone who wants to read it. It is also addressed to the judge who might try a patent infringement suit one day. It is also addressed to the client, after all, he's paying the bill; so you present it to him in some fashion that he will find acceptable or, perhaps, even favorable. It is addressed, not officially but unofficially, to my worthy competitors, other patent attorneys who might review my work some day...So I have a certain pride in my work...It might also be thought that it is addressed or couched in the language that it is partly because of previous court decisions. Some phraseology in the patent application or in the patent has been in question...in other cases and has been ruled upon by courts. For example, in the claims you will notice that a claim starts off, a device "comprising". That word "comprising"...is a "word of art"...a technical word in this field. It means including. You can simply use the normal word including. If you say for example "consisting of", that has, in our field, an entirely different meaning, it means just, solely, only. Comprising is inclusive, consisting of is exclusive."

2.9 Filing

Mr. Lothrop submitted the prepared application for consideration (and possible approval) to Messrs. Kendrick and Schlage on Dec. 20, 1968. The Schlage Lock Co. has been intimately involved with patents since the company's inception and consequently takes an active role in the

consideration of a patent application. As a result of this unusual familiarity with patents on the part of the client, the original patent application underwent several revisions over the next several months.

When Messrs. Lothrop, Schlage, and Kendrick were satisfied, the application was filed with the U. S. Patent Office in Washington, D.C. The application consisted of: a covering letter, oath, power of attorney and petition, specifications (objectives and descriptions) and claims, the drawings and filing fee. The covering letter is presented in Exhibit 2.7. Since Mr. Lothrop had first received instructions from Schlage Lock Co. on November 21, 1968, a period of 19 months had passed during the preparation and filing of the application. Of this 19 months, 18 had been spent in revision of the application.

In acknowledgment of the patent application, the Patent Office sends a "Notice of Filing Receipt". The filing receipt contains the filing date (May 5, 1969) and the serial number of the patent application.

3. FIRST ACTION

3.1 The Examiner

When the application is received by the Patent Office, an "examiner" is assigned. The examiner is the Patent Office's official spokesman for each application to which he is assigned. The Patent Office has many examiners and each examiner works on more than one patent application at a time. As a result, the Patent Office issues several hundred patents a week.

The examiner reviews the patent application to see that it meets legal requirements regarding the drawings, petition, etc. After he has assured himself that the application is "legally proper" then he gives the claims careful scrutiny.

During this close examination, the expertise of the particular patent examiner becomes evident. Sometimes examiners will disallow patents because they simply don't understand the concept involved. In other rare cases, their reasons for allowance or rejection are very different. In most cases however, the examiner is a fair judge of the patent application.

Once the examiner has decided what to do about the application, he lets the applicant know in the form of an "action". The action is the Patent Office's reply to the application and represents the position taken by the Patent Office with respect to the patent. It is a statement by the Patent Office (examiner) of what is allowed and what isn't allowed. The waiting period between the filing of

the application and the first action can vary from a few days to several months. This interval depends on the examiner's workload and the type of patent application involved.

3.2 The Action

Mr. Lothrop received the action a little over a year after the official filing date. As shown in Exhibit 3.1, he had three months in which to reply to the action. The examiner's action is given under "Summary of Action". In this portion, the examiner states that claims 6 and 7 would be allowed if amended and claims 1-5 and 8-11 are rejected. On an attached sheet (see Exhibit 3.2) the examiner states his reasons for rejection, which are that he feels the application is "anticipated" by several previous patents, and thereby not "new" or "original". The patents involved were cited and copies were enclosed for Mr. Lothrop's examination.

Mr. Lothrop's task was now to "prove" to the examiner why or how his patent application differs from the previous patents and to amend the application so that these differences are clear.

Exhibit 3.1

U.S. DEPARTMENT OF COMMERCE
Patent OfficeAddress Only: COMMISSIONER OF PATENTS
Washington, D.C. 20231

In Reply Please Refer To The Following:		
EXAMINER'S NAME A. Craig		
353	May 5, 1969	821,673
GR. ART UNIT	FILING DATE	SERIAL NO.
Murren Kendrick		
APPLICANT		INVENTION
EXTERIORLY OPERABLE LOCK BOOT		

Paper No. 2

Mailed _____

LOTHROP & WEST

REC'D. MAY 15 1970

FILE: 5294

This is a communication from the Examiner in charge of your application.

Commissioner of Patents

Lothrop and West
1150 Alcoa Bldg.
San Francisco, California
94111

☒ This application has been examined.☐ Responsive to communication filed _____

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS ACTION IS SET TO EXPIRE

THREE MONTHS _____ DAYS FROM THE DATE OF THIS LETTER.

The following attachment(s) are part of this action:

- a. ☒ Notice of References Cited, PO-892. b. ☐ Notice of Informal Patent Drawing, PO-948.
c. ☐ Notice of Informal Patent Application, PO-152. d. ☐

Summary of Action

- ☒ Claims 1 Through 11 are presented for examination.
- ☐ Claims _____ are allowed.
- ☒ Claims 6 and 7 would be allowable if amended as indicated.
- ☒ Claims 1 Through 5 and 8 Through 11 are rejected.
- ☒ Claims 6 and 7 are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.
- ☐ Claims _____ are withdrawn from consideration.
- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as


Art Unit 353

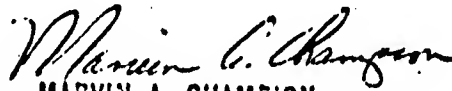
Exhibit 3.2

Claims 1, 3, 5, 8, 10 and 11 are rejected under 35 USC 102 as expressing applicant's invention in terms that are anticipated by each Woolsey and Joseph.

Claims 2, 4 and 9 are rejected under 35 USC 102 as expressing applicant's invention in terms that are anticipated by Woolsey.

Claims 6 and 7 are objected to as depending from a rejected claim. Should claim 6 be rewritten to include the subject matter of claim 1, claims 6 and 7 will be allowed.


AGCraig, Jr.:mla
557-3011
area code 703
4/1/70


MARVIN A. CHAMPION
EXAMINER
GROUP ART UNIT 353

LOTHROP & WEST

REC'D. MAY 15 1970

FILE: 5294

4. AMENDMENT

An amendment consists of revisions to the description, drawings or claims to meet the examiners specific recommendations. Excerpts from the amendment can be seen in Exhibit 4.1. The first portion of the amendment makes some changes in the description to clarify the device's operation.

The next portion of the amendment is the amended claims. Claims 5, 8, 10 and 11 are cancelled "solely to facilitate the prosecution of this application and not because it is considered that their subject matter is anticipated by the cited art". Wording of this type cancels the claims in question, yet does not admit that the subject matter claimed in them is necessarily wrong. After carefully studying the Woolsey and Joseph patents, the claims were rewritten to avoid conflict between the Kendrick device and the Joseph and Woolsey devices. In the amendment, words to be removed are bracketed and new words are underlined.

As an example of the detail important in the claims, consider amended claim 3 (Exhibit 4.2). In amended form, the first change in claim 3 is removal of "first meansbolt and said". Claim 1 reveals that the "said first means" is the lock mechanism. This portion was removed to make the claim slightly broader. If someone had constructed a lock with a key that couldn't project the bolt, it wouldn't have been covered by the claim since the claim stated that the key projected and retracted the bolt.

IN THE UNITED STATES PATENT OFFICE

Paper No. 3
Group 353

AMENDMENT

Sir:

Kindly revise the remaining claims as follows:

Exhibit 4.2

1. (amended) An exteriorly operable lock bolt for mounting on a panel having an interior side and an exterior side comprising a chassis adapted to be connected to said panel, a bolt mounted on said chassis to project and retract, first means on said chassis for projecting and retracting said bolt, said first means including a lock mechanism having an axis, a driver bar extending from said lock mechanism in the direction of said axis, means for connecting said driver bar and said bolt, and second means accessible on the exterior side of said panel for only projecting said bolt, said second means including a lever connected to and extending radially from said driver bar and movable in an arcuate path, a turn piece surrounding said lock mechanism, means for mounting said turn piece for rotation about said axis relative to said lock mechanism, and a bar fixed on said turn piece and extending in an axial direction alongside said lock mechanism and in the path of said lever on one side thereof.

2. (amended) An exteriorly operable lock bolt as in claim 1 in which said axially extending bar (second means) is related (connected) to said lever (first means) by a lost motion connection.

3. (amended) An exteriorly operable lock bolt as in claim 1 in which said (first means operates in one direction for projecting said bolt and in the opposite direction for retracting said bolt and said) second means includes a stop for limiting the rotation of said turn piece (operates in said one direction for projection said bolt).

4. (amended) An exteriorly operable lock bolt as in claim 1 in which said lever in said second (first) means is (includes) a rotary member, an annular escutcheon ring surrounds said lock mechanism and has an opening in the annular portion thereof, and said bar in said second means (includes a movable part having) extends through said opening and into a

The second change to claim 3 is replacing "second means includes a stop for limiting the rotation of said turn piece" for "second means operates in said one direction for projecting said bolt". In its original form, the claim conflicted with the Joseph and Woolsey patents, both of which had an exterior knob to project the bolt. However, their patents specified a knob which could turn freely in the retracting direction. The stop on the knob's rotation made the Kendrick device different, so the claim would be acceptable.

After all of the disputed claims were amended, the application was returned to the examiner for reconsideration on July 24, 1970. Mr. Lothrop then awaited the examiner's second action.

5. SECOND ACTION

On reaching the Patent Office, these revised claims would be studied by the examiner. If the examiner considered that the amended claims were satisfactory, i.e., they did not describe devices in existing patents or did not contain features that are obvious to a person having skill in the field of invention, he might allow them. Otherwise, the whole application would be rejected and returned. If the applicant felt strongly enough that his claims were valid, he might lodge an appeal with the Patent Office Board of Appeals by paying an appeal fee of \$50.00. In this event, Mr. Lothrop would prepare a "brief" or explanation and argument and submit it to the Board of Appeals, together with a brief fee of \$50.00. The brief describes briefly the patent application at issue, the claims made, the reasons given by the Patent Office for rejection and the reason why the claim should be allowed. The Board of Appeals would be comprised of senior members of the Patent Office and would hold a hearing if an oral presentation of the case was necessary. In most instances however, the brief would give sufficient information for the Board of Appeals to arrive at a decision. The oral presentation would incur more attorney costs to the patent application and, therefore, would usually be avoided. However, where a physical demonstration of a model of the invention might prove a point, the oral presentation would be preferred.

In the event that the Board of Appeals rejected the claims, and the applicant was dissatisfied with the decision, the last resolve would be an appeal to the Court of Customs and Patent Appeals which would have final judgment.

Whatever the outcome, Mr. Lothrop would receive a notice (second action) from the Patent Office. The notices from the Patent Office were always anticipated with some excitement and trepidation. Mr. Lothrop remarked "... from experience we are able to tell whether or not the notice is favorable. A small envelope means good news, a large and heavy one means otherwise". The large envelope would contain all the earlier patents relied on to reject the application, furnished by the Patent Office. On the other hand, the small envelope would enclose only the "Notice of Allowance and Base Issue Fee Due". Among the information tabulated, this notice would show the number of claims allowed and the amount of dollars of the "Base Issue Fee" due to the Patent Office. The Base Issue Fee must be paid within three months from the date on the Notice or the application will be regarded as abandoned.

The notice was received by Mr. Lothrop on Jan. 11, 1971 and the news was good. See Exhibit 5.1. The Base Issue Fee was eventually paid on March 29, 1971. In the intervening time, various corresponding patent applications were filed in several foreign countries. The dates of filing patent applications in those countries must precede the date of issue of the U.S. patent. It was therefore necessary to delay payment for as long as permissible.

Evidence of the payment of the Base Issue Fee was indicated by a receipt from the Patent Office (Exhibit 5.2) which accompanied a notification of the "Balance of Issue Fee Due". On this notice the patent number and date of patent issuance were printed (Exhibit 5.3). As in the case of the Base Issue Fee, failure to pay the balance within three months would result in lapse of the patent.

Exhibit 5.1

All communications regarding this application should give the serial number, date of filing, and name of the applicant.



**U.S. DEPARTMENT OF COMMERCE
Patent Office**

Address Only: COMMISSIONER OF PATENTS
Washington, D.C. 20231

NOTICE OF ALLOWANCE AND BASE ISSUE FEE DUE

The application identified below has been examined and found allowable for issuance of Letters Patent.

	FILING DATE 05/05/69	SERIAL NO. 821673	NO. OF CLAIMS ALLOWED 7	EXAMINER AND GROUP ART UNIT Champion 353
APPLICANT	Kendrick, Marren; Atherton, Calif.			MAILED Jan. 7, 1971 rmw April 7, 1971
TITLE OF INVENTION (X indicates as amended by examiner)	Exteriorly operable lock bolt			
BASE FEE COMPUTATION			BASE FEE DUE	CLASS-SUB
\$100.00	+ \$8 (FOR DWG. @ \$2 PER SHEET)	+ \$10 (FOR FIRST PAGE PRINTED SPEC.)	\$118	070/129.

The complete Issue Fee is one hundred dollars (\$100) plus two dollars (\$2) for each sheet of drawing, plus ten dollars (\$10) for each printed page of specification (including claims) or portion thereof.

Inasmuch as the final number of printed pages cannot be determined in advance of printing, an initial BASE ISSUE FEE (consisting of the fee for printing the first page of specification (\$10) plus the fee of (\$2) for each sheet of drawing, added to the fee of \$100) must be paid within three months from the date of this notice, or the application shall be regarded as ABANDONED.

When remitting said Base Issue Fee, enclosed Form POL-85b should be used, and if use of a Deposit Account is being authorized, POL-85c should also be forwarded.

The Base Issue Fee will not be accepted from anyone other than the applicant, his assignee, attorney, or a party in interest as shown by the records of the Patent Office.

If an assignment has not been previously filed and it is desired to have the patent issue to the assignee, the assignment must be received in this Office with the recording fee together with the Base Issue Fee. In any event the space for "Assignee" on the POL-85b must be appropriately completed. Where the assignment is to a corporation, the city and state of the corporation as well as the state of incorporation must also be given, to ensure inclusion in the heading of the printed patent.

In connection with the address of the inventor(s), attention is directed to Form POL-231 enclosed.

A Notice of Balance of Issue Fee Due will be mailed together with the patentee's copy of the patent if an additional fee is due. Payment must be made within three months from the date shown on said Notice since FAILURE TO PAY THIS BALANCE WITHIN THE TIME SPECIFIED WILL RESULT IN LAPSE OF THE PATENT.

LOTHROP & WEST

**Lothrop and West
1150 Alcoa Bldg.
San Francisco, Calif. 94111**

REC'D. JAN 11 1971

FILE 5294

YOUR COPY — See reverse side for Base Issue Fee Record

Exhibit 5.1 (cont.)

BASE ISSUE FEE RECORD

This form is provided for optional use in recording information for your files. It is so designed that with use of carbon paper it may be filled in concurrently with the completion of the Base Issue Fee Transmittal form POL-85b.

1. The COMMISSIONER OF PATENTS is requested to apply the Base Issue Fee to the application identified below and deliver the patent as indicated.

March 26, 1971

Date

Lothrop & West by Marcus Lothrop

(SIGNATURE OF PARTY OF INTEREST OF RECORD)

NOTE: The Base Issue Fee will not be accepted from anyone other than the applicant, his assignee, or attorney, or a party in interest as shown by the records of the Patent Office, nor will this fee be accepted in the application prior to the Notice of Allowance.

2. ASSIGNEE (Item a or item b below MUST BE COMPLETED (Rule 334))

a. ☐ NONE

b. ☒ YES. Assignment is to _____

Schlage Lock Company

(1) ☐ Assignment herewith.

(2) ☒ The Patent Office has recorded and returned the assignment which is as shown in "b" above.

☒ YES

☐ NO

3. BASE FEE ENCLOSED

☒ YES

☐ NO

Charge to my Deposit
Account Number: _____

(POL-85c must be enclosed)

a. ☐ For Base Fee.

b. ☐ For Balance of Issue Fee Due, if any.

DO NOT USE THIS SPACE.

MAILING INSTRUCTIONS

NOTE: All further correspondence, the patent together with the Notice of Balance of Issue Fee Due, if any, will be mailed to the addressee entered in the stub marked 4 at the lower left below, unless you direct otherwise by specifying the appropriate name and address in item 4e below right.

4e. Further correspondence is to be mailed to the following:

Exhibit 5.2

FILING DATE	SERIAL NO.	PATENT NO.	DATE OF PATENT
05/01/69	821673	3593548	07/20/71
Kendrick, Marron; Atherton, Calif.			
INVENTOR			
ASSIGNEE			
Schlage Lock Company			
Exteriorly operable lock bolt			
INVENTION			
PP. 218 MICROFILM OF 5 Pgs. RE. PT.	SHEETS OF DRAWINGS	MIN. ISSUE FEE PAID	DATE FEE PAID
	\$8 004	\$118	03/29/71
Lothrop and West 1150 Alcoa Bldg. San Francisco, Calif. 94111			CLASS. SUB 070/129.
U.S. DEPARTMENT OF COMMERCE			PATENT OFFICE
DB 1jw			353/006/2/8/

Exhibit 5.3

U.S. DEPARTMENT OF COMMERCE
PATENT
PO-1031-C

PLEASE PRINT FIRMLY ON A HARD SURFACE USING BALL POINT PEN

72071 352348

Notification

Balance of Issue Fee Due

The total number of printed pages of specification in the enclosed patent exceeds the one page already paid for in the Base Issue Fee. The balance due is

\$ 30 (minus \$10 paid with Base Issue Fee) = \$ 20

PAYMENT OF THIS BALANCE MUST BE MADE WITHIN THREE (3) MONTHS FROM THE PATENT DATE SHOWN ABOVE.

Failure to pay this balance within the time specified will result in lapse of the patent.

To expedite processing, please use the attached form PO-1031-C to transmit the fee. Where use of a Deposit Account is being authorized, both parts C and D of this form should be transmitted.

By direction of the Commissioner.

Please type address of person who is to receive
the Balance of Issue Fee Receipt

Lothrop & West

1150 Alcoa Building

San Francisco, Calif. 94111

PAYMENT IS MADE AS FOLLOWS:

☐ Charge \$ _____ to my

Deposit Account No. _____

☒ Check for \$ 20.00 enclosed.

William Lothrop

(Signed)

B - YOUR FILE COPY

The patent, as finally issued, appears as Exhibit 5.4 appended at the end of the case.

Note in Exhibits 5.1 and 5.2 the patent is placed in a class and subclass (070/129). This is the way the Patent Office identifies the subject of the patent. Exhibit 5.5 is the official description of 070/129 from the Classification Index.

70-1

CLASS 70, LOCKS

October 1955

Original Classification		N. Bluffestone	1936	SPECIAL APPLICATION	
Definitions in Bulletin No. 214				For portable articles	
1	MISCELLANEOUS			Receptacle	
1.5	ATTACK ACTUATED DEFEATING MECHANISMS	68		Bag	Attache'-or brief-case, portfolio
1.7	With reset mechanisms	69			Interengageable slide fastener type
2	HASP	70		Trunk and/or suitcase	
3	Combination lock	71		Projecting fixed or movable lug type	
4	Hasp carried	72		Bolt type	
5	Keeper carried	73		Hasp controlled	
6	Key lock	74		Link and lever or hasp type	
7	Hasp carried	75		Hasp type	
8	Keeper encasing	76		Hasp carried lock	
9	Dead-bolt	77		Loop type	
10	Latching-bolt	78		For closures	
11	Dead-bolt	79		Cabinet	
12	Latching-bolt	80		Projecting lug type	
13	Keeper carried	81		External catch	
14	PORTABLE	82		Projectable bolt	
15	Fetters	83		Multiple bolts	
16	Manacles and cuffs	84		Multidirectional displacement	
17	Nippers	85		Swinging and hooked end	
18	Shackles	86		Drawer	
19	Clamps	87		Dead-bolt	
20	Padlocks	88		Till	
21	Combination and/or key controlled	89		Combination	
22	Combination controlled	90		Window	
23	Non-shackle type	91		Sliding sash	
24	Rigid shackle	92		Door	
25	Sliding	93		Emergency exit	
26	Removable	94		Links to limit opening	
27	Pivoted	95		Braces	
28	Sliding detent	96		Sliding door	
29	Swinging detent	97		Extending keeper	
30	Flexible shackle	98		Rigid or fixed	
31	Key controlled	99		Extensible	
32	Non-shackle type	100		Projecting or extending bolt	
33	Housing extension and cooperating detent	101		Projectable bolt	
34	Single stem or shank	102		Swinging door	
35	Rigid shackle	103		Interfitting lock housing and keeper	
36	Divided shackle	104		Multiple dead-bolts	
37	Divided jaw type	105		Sliding dead-bolt	
38	Sliding	106		Swinging dead-bolt	
39	Removable	107		Locking latch-bolt, biased'	
40	Arcuate locus	108		Combined dead-bolt and latching-bolt	
41	Pivoted	109		Multiple dead-bolts	
42	Sliding detent	110		Multiple latch-bolts	
43	Free end only engaged	111		Dead-bolt dogged latch-bolt	
44	Pivoted end only engaged	112		Manually dogged latch-bolt	
45	Swinging detent	113		Dead-bolts	
46	Free end only engaged	114		Multiple	
47	Pivoted end only engaged	115		Sliding and swinging	
48	Arcuate locus	116		Combination operable only	
49	Flexible shackle	117		Key operable only	
50	With seal	118		Sliding and rotary	
51	Parts, accessories, attachments and adjuncts	119		Sliding	
52	Housings	120		Combination operable only	
53	Shackles	121		Key operable only	
54	Protectors	122		Swinging	
55	Sheaths	123		Combination operable only	
56	Shields or canopies	124		Key operable only	
57	SPECIAL APPLICATION	125		Single	
58	For portable articles	126		Sliding and swinging	
59	Canes, umbrellas, apparel	127		Combination operable only	
60	Robes	128		Key operable only	
61	Tools	129		Sliding and rotary	
62	Supporting stands	130		Sliding	
63	Receptacle	131		Multidirectional displacement	
64	Bag	132		Keeper interlocking	
65	Collapsible throat	133		Curved	
66	Pivoted rigid jaw	134		Combination operable only	
67	Attache'-or brief-case, portfolio	135		Key operable only	
		136		Swinging	
				Keeper and housing interlocking	

6. INFRINGEMENT

Infringement of a patent involves the unauthorized making, using or selling of the patented invention within the territory of the United States during the term of the patent (17 yrs. from issue date). Imitation of all the features contained in any claim of the patent constitutes the infringement.

Where a patent has been infringed upon, the delinquent manufacturer must stop production of the article immediately in order to reduce liability, i.e., reduce the cost of settlement. The manufacturer might then approach the inventor and offer to buy the patent or negotiate a license to manufacture the device. Failing this, the manufacturer would have to try to invent something new or otherwise circumvent the patent in question.

6.1 Allegation

On January 8, 1976, Mr. Lothrop received a copy of a letter (Exhibit 6.1) from the attorneys Weinsoff, Weinsoff and Carney, P.A., Florida addressed to Schlage Lock Co., and some related correspondence from Schlage Lock Co. The firm of Weinsoff, Weinsoff and Carney alleged that Schlage Lock Co. had, by making and selling the Kendrick device, infringed upon the patent of Mr. George Newman (Patent #3,751,953) which was presently assigned to All Services Company and requested Schlage Lock Co. to immediately terminate the infringement.

Over the telephone, Mr. Lothrop was instructed by Ernest Schlage to study the allegation. Mr. Schlage was able to quickly generate a list of relevant patents from the extensive files at Schlage Lock Co. (Exhibit 6.2). This list was forwarded to Mr. Lothrop on January 14, 1976.

Weinsoff, Weinsoff & Carney, P.A.

Lawyers

SUITE 804 ROBERTS BUILDING
28 WEST FLAGLER STREET
MIAMI, FLORIDA 33130

Exhibit 6.1

HERBERT WEINSOFF
IRVING WEINSOFF
THOMAS M. CARNEY

TELEPHONES
371-1475 • 374-7963
AREA CODE 305

ELLIOT S. SHAW *and others* **LOTHROP & WEST**

REC'D. JAN 8 1976

December 22, 1975

FILE: 5894-*infringement LLL*

Schlage Lock Company
Subsidiary of LCM Closers, Inc.
Vonnegutt Hardware Company
Bayshore and Blanken Avenue
San Francisco, Calif. 94134

Dear Sirs:

Please be advised that I have been informed by my client, Mr. Morris Lipp, President of All Services Company, that your company has designed and continues to manufacture and sell a protective lock ring assembly which infringes upon his Patent #3,751,953 granted August 14, 1973. Mr. Lipp is the assignee of such patent from one George Newman, the original patentee. Annexed hereto is a copy of such U.S. Patent and a copy of Mr. Newman's assignment filed with the Patent Office November 18, 1974. *see samples of locks - Bunch for New York*

Therefore, it is essential that I request your immediate termination of such infringing conduct until such time as a licensing agreement is entered into between my client and your company.

If I am unable to obtain your cooperation in this matter, my client will have no choice but to proceed to Federal Court for preliminary and permanent injunction and an accounting of profits against you and some of your customers for selling the infringing devices.

I look forward to your prompt response.

Sincerely,

WEINSOFF, WEINSOFF & CARNEY, P.A.

ESS:rab
Enclosures

[Signature]
Elliot S. Shaw, for the firm

JAN 5 REC'D

ASSIGNMENT OF PATENT NO. 3,751,953

Exhibit 6.1 (cont.)

KNOW ALL MEN BY THESE PRESENTS that GEORGE NEWMAN, assignor, in consideration of Ten Dollars and other good and valuable considerations, assigns all of his right, title and interest in and to that certain patent described as Patent No. 3,751,953, recorded in the Patent Office, Department of Commerce, Washington, D. C., known as "Protective Lock Ring Assembly", including any and all trademark rights for "Lockguard", unto All Services Company, assignee.

Dated this 28th day of October, 1974

Witnesses:

James F. Kennedy
Daniel J. Schmitt

George Newman

STATE OF FLORIDA)

ss

COUNTY OF DADE)

BEFORE ME, the undersigned authority, personally appeared GEORGE NEWMAN, who having been first duly sworn, says that he executed the foregoing assignment for the purposes therein expressed.

SWORN TO and SUBSCRIBED before me this 28 day of October, 1974.

Joe Marie Fair
Notary Public, State of Florida at Large

My Commission Expires:

NOTARY PUBLIC, STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES JULY 1, 1976
Bonded by American Notary Association

REEL 3138 FRAME 72

SCHLAGE
LOCK COMPANY

39

FCL 228

INTERDEPARTMENTAL

TO Mr. Dexter Tight DATED January 14, 1976

FROM E.L. Schlage AT Research Center

SUBJECT Alleged Patent Infringement by Morris Lipp

REFERENCE Infringement File LLL

Exhibit 6.2

In accordance with your letter of January 6, 1976, I have asked Mr. Marcus Lothrop to analyze subject alleged patent infringement. When his study is complete, he will call you for an appointment to discuss the facts in this matter. He understands that you plan to reply to Mr. Elliot S. Shaw in about one week.

The following correspondence, documents, patents, drawings, sketches, catalog pages, and samples have been given to Mr. Lothrop since they are relevant to his analysis.

1. George Newman patent assignment dated Oct. 28, 1974
2. Letter Shaw to Schlage dated Dec. 22, 1975
3. Letter Tight to Shaw dated Jan. 6, 1976
4. Letter Tight to Schlage dated Jan. 6, 1976
5. Sketch by E.L. Schlage dated Jan. 7, 1976
6. Schlage catalog pages B/5 and B/11
7. Eight engineering drawings of Schlage cylinder rings
8. Collection of Schlage cylinder ring samples
9. Adams Rite catalog page SW-13
10. National - V479L-3
11. Kwikset cylinder housing - 680
12. Kwikset cylinder housing - 580 (tested)
13. Schlage early collapsible mortise ring
14. Schlage early 'B' lock with two rings
15. Schlage B100 with black extender ring
16. Weiser cylinder housing
17. Patent 1,739,964 Hainline Dec. 17, 1929
18. Patent 2,691,290 Schlage Oct. 12, 1954
19. Patent 3,212,308 Eads Oct. 19, 1965
20. Patent 3,343,386 Hall Sept. 26, 1967
21. Patent 3,408,840 Hasenbein Nov. 5, 1968
22. Patent 3,449,934 Check June 17, 1969
23. Patent 3,465,556 McIlvenny Sept. 9, 1969
24. Patent 3,477,261 Siana Nov. 11, 1969
25. Patent 3,492,038 Schlage Jan. 27, 1970

LOTHROP & WEST

REC'D. JAN 16 1976

FILE: 5894 -

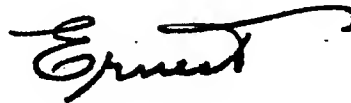
Infringement LL

Mr. Dexter Tight

Page 2

January 14, 1976

26. Patent 3,509,748	Trainor	May 5, 1970	
27. Patent 3,587,081	Hawkins	June 22, 1971	
28. Patent 3,593,548	Kendrick	July 20, 1971	<u>Exhibit 6.2 (cont.)</u>
29. Patent 3,630,053	Krakauer	Dec. 28, 1971	
30. Patent 3,630,054	Malminen	Dec. 28, 1971	
31. Patent 3,699,788	Gerlach	Oct. 24, 1972	✓
32. Patent 3,751,953	Newman	Aug. 14, 1973	✓
33. Patent 3,765,199	Wiczer	Oct. 16, 1973	
34. Patent 3,835,677	Niilola	Sept. 17, 1974	
35. Patent 3,869,890	Neary	March 11, 1975	



ELS/mek

bcc: Mr. Marcus Lothrop ✓

In cases where the patent information isn't so readily available, Mr. Lothrop would instruct his associates in Washington D.C. to conduct a physical search at the Patent Office. Mr. Lothrop states "I give him some focus on where to look and for what, and give him a numerical limit on the extent or time to be spent on the search. Then I don't say "spend \$80.00"... I usually say "Try to make the usual preliminary search"... or I may say "Limit your search to \$100.00 and then report to me, we'll see whether to extend it or not."

Mr. Lothrop had to make a comprehensive study of the allegedly infringed patent to see what were the special features contained in the claims and to compare with earlier patents which bore resemblance to those features. Effectively, the main claim in Newman's patent (Exhibit 6.3) was "a protective lock ring assembly for encircling an outwardly projecting portion of a cylinder type of lock". The feature of this protective lock ring assembly was that "...the rotatable outer ring.... provides a structure which is relatively tamper proof by conventional methods and tools."

6.2 Reply

After making a detailed study of all the information, Mr. Lothrop concluded that the Newman claims did not cover or were not infringed by the Schlage Lock and that because of earlier Kendrick and Gerlach patents which were overlooked by the Patent Office, the Newman patent was invalid (Exhibit 6.4).

There was an important distinction between Newman's invention and Schlage's production lock. In considering the Newman patent, it

United States Patent [19]

Newman

Pat. File #
Gen. Int. ✓
Inv. S. Am.
Ref. of Pat.
Search #
Project
Other *infringement LLL*

[11] *Shepard not in*
3,751,953
[45] Aug. 14, 1973

[54] PROTECTIVE LOCK RING ASSEMBLY

[76] Inventor: **George Newman, 2010 N.E. 120 Rd., North Miami, Fla. 33161**

[22] Filed: **Feb. 22, 1972**

[21] Appl. No.: **227,890**

[52] U.S. Cl. **70/381, 70/418, 70/452**

[51] Int. Cl. **E05b 15/02**

[58] Field of Search. **70/381, 452, 417, 70/418; 248/27**

[56]

References Cited

UNITED STATES PATENTS

3,465,556 9/1969 McIlvenny 70/423
3,630,054 12/1971 Malminen 70/452

3,343,386 9/1967 Hall 70/423

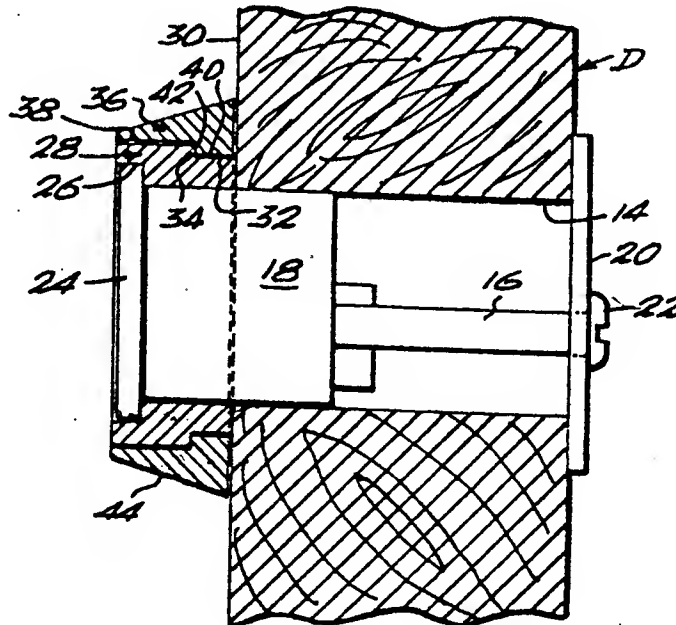
Primary Examiner—Robert L. Wolfe
Attorney—John Cyril Malloy

[57]

ABSTRACT

A two-part lock ring assembly for protectively encircling the outwardly projecting portion of a cylinder type of door lock. The ring assembly is comprised of an inner ring which is clamped tightly between an outer flange of the lock cylinder and the door, and an outer ring which is loosely, rotatively, held about the inner ring. The outer annular ring is of a truncated conical configuration.

4 Claims, 2 Drawing Figures



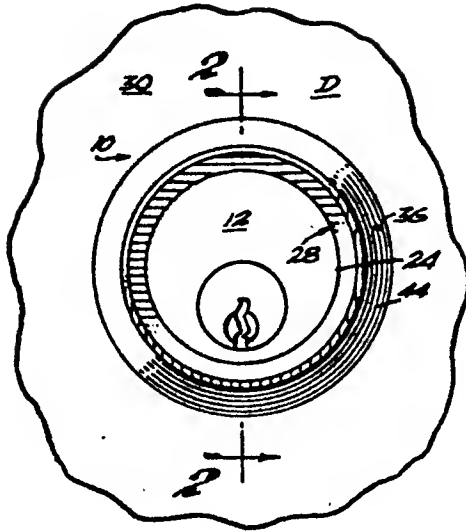
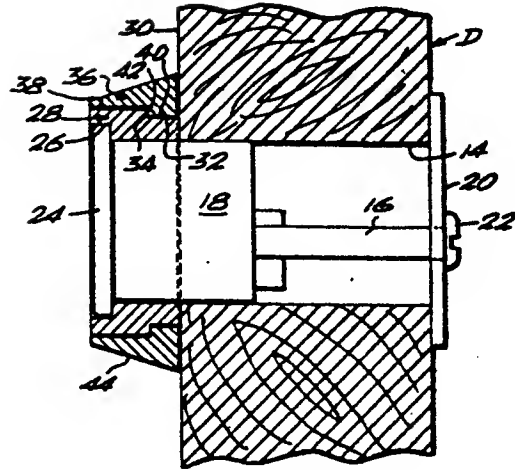
LOTHROP & WEST

REC'D. JAN 8 1976

FILE 5894 Infringement LLL

PATENTED AUG 14 1973

3.751.953

*Fig. 1**Fig. 2*

3,751,953

Exhibit 6.3 (cont.)

1

PROTECTIVE LOCK RING ASSEMBLY

STATE OF THE PRIOR ART

Many cylinder type of locks are mounted through annular holes in doors and project outwardly a distance beyond the outer faces of the doors. Locks of this type generally have one thing in common. They have outer enlarged annular flanges which are seated in annular depressions in ring members which surround the outwardly extending portions.

These ring portions are generally more decorative in nature than they are protective, being formed of a relatively thin sheet metal which can be easily torn away with a pair of pliers. After the ring is removed, the extending portion of the lock cylinder can be grasped with pliers or the like and twisted and turned until the fastening means is broken, whereupon the lock cylinder may be readily extracted, rendering the entire lock mechanism useless, resulting in easy access to the house, apartment, office, etc.

BACKGROUND OF THE PRESENT INVENTION

The present invention provides a protective lock ring assembly, preferably formed of hardened steel, which is adapted to surround the outwardly extending portion of a cylinder type of lock. The ring assembly is designed to provide a very substantial degree of protection while, at the same time, having aesthetic qualities equal to or surpassing the presently used structures.

The ring assembly of the present invention comprises, generally an inner ring member, clamped firmly between the enlarged outer flange of a typical cylinder type of lock and the outside surface of the door. An outer ring surrounds the inner ring and is rotatively held in place thereby. The outer ring preferably provides a beveled peripheral surface generally having the form of a truncated cone.

The combination of the annular beveled periphery and the rotational aspect of the outer ring portion makes it virtually impossible to grasp and apply and substantial forces to the ring assembly by any conventional tool. Additionally, the fact that both ring portions of the assembly are of a substantial thickness of hardened steel, adds substantially to the protective value of the ring assembly of the instant invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the ring assembly of the present invention, mounted on a typical cylinder type of lock mechanism, mounted in a door; and

FIG. 2 is a cross sectional view taken along the line 2-2 in FIG. 1.

DETAILED DESCRIPTION OF THE DRAWINGS

With reference to the drawings in which like reference numerals designate like or similar parts throughout the two views, the numeral 10 generally designates the ring assembly of the present invention, applied to a typical cylinder lock mechanism 12, mounted in a door D.

As illustrated in FIG. 2, the lock mechanism 12 is mounted in a through hole 14 in the door D. Various mechanical details such as the bolt mechanism, inside actuating means, etc. have been omitted because they have no association with the protective ring assembly of the present invention.

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One typical type of mounting means is illustrated in FIG. 2, consisting of a pair of internally screw threaded tubular members 16 (one shown), fixed to the lock cylinder 18 and extending through to an inside plate member 20. A screw 22 passes through the plate member 20 into threaded engagement within each of the tubular members 16.

The lock cylinder 18 extends partially into the hole 14 and extends partially outwardly thereof and terminates in an enlarged outer flanged portion 24. The flange 24 is seated in an annular recess 26 provided in the outer end of a first or inner ring member 28. As illustrated in FIG. 2, the inner ring member 28 is held tightly between the flange 24 and the outer face 30 of the door. It should be noted that some cylinder type of locks may include a nut, plate or the like, overlying the outer face of the door and the inner ring 28 would then be clamped between the flange 24 and the nut, plate or the like, however in all circumstances the inner ring 28 is clamped firmly in place when the screws 22 are drawn tight.

The inner ring 28 has a reduced external diameter at the inner end portion 32, thereby forming a shoulder 34. An outer ring 36 is circumposed about the inner ring 28, providing internal diameters 38 and 40 loosely engaged about the respective mating external diameters of the inner ring 28, and forming a shoulder 42 in abutment with the shoulder 34. As illustrated in FIG. 2, the reduced internal diameter portion 40 of the outer ring 36 is slightly shorter than the reduced external diameter portion 32 of the inner ring. The outer ring 36 is therefore confined to loose rotational movement about the inner ring 28.

The outer periphery of the outer ring member 36 is beveled as at 44, generally forming an outwardly extending truncated conical configuration. As previously stated, both the inner and outer rings 28 and 36 are preferably formed of relatively thick hardened steel, which, in combination with the rotatable outer ring 36 having a beveled outer periphery, provides a structure which is relatively tamper proof by conventional methods and tools.

When the inner and outer rings are assembled as illustrated in cross section in FIG. 2, the outer faces thereof are flush and the respective shoulders 34 and 42 are equidistant from the outer faces. However in a preferred embodiment the overall thickness of the outer ring is approximately one-sixteenth of an inch less than the overall thickness of the inner ring, permitting free rotational movement of the outer ring 36 about the inner ring 28.

What is claimed is:

1. A protective lock ring assembly for encircling an outwardly projecting portion of a cylinder type of lock, fixedly mounted in a through hole in a door or the like and having an outer enlarged annular flange comprising,

A. a one-piece inner ring of a first axial length about the outwardly extending portion of the lock in a fixed relation between the enlarged annular flange and the door and including,

1. an annular depression in the outer face thereof to receive the enlarged annular flange in a recessed relation,
2. the inner ring having a first end and a second end, said inner ring being sized for the first end to bear against the surface of the door and said

SCHLAGE LOCK COMPANY

BRANCHES IN
PRINCIPAL CITIES

EXECUTIVE OFFICES AND FACTORY
BAYSHORE BOULEVARD

CABLE ADDRESS "SCHLAGE"
TELEX NUMBER 34-0409
TELEPHONE (415) 487-1100

P. O. BOX 3324
SAN FRANCISCO, CALIF. 94119

Exhibit 6.5

Law Department

January 22, 1976

LOTHROP & WEST

Mr. Elliot S. Shaw
Weinsoff, Weinsoff and Carney
Suite 804 Roberts Building
28 West Flagler Street
Miami, Florida 33130

REC'D JAN 26 1976

FILE 5894-Infringement-LLL

Re: Claim of Morris Lipp

Dear Mr. Shaw:

I have now had a chance to discuss with our management and outside patent counsel your letter of December 22 and your client's claim that we infringe his patent.

I am now satisfied that none of our products infringes Mr. Lipp's Patent #3,751,953 since no claim of that patent describes any Schlage product. Although there are several points which might be argued, it is clear that an essential element of Mr. Lipp's patent claims is a rotatable outer ring. Outer rings in Schlage locks are not rotatable, rather they are specifically designed against rotation. Hence, no infringement.

Furthermore, we are also convinced that Mr. Lipp's Patent #3,751,953 is invalid. Rotatable outer rings are not new. To satisfy yourself on this, you might review Schlage's Kendrick Patent #3,593,548, Figure 14 or Emhart's Gerlach et al, Patent #3,699,788, Figure 11, both showing a rotatable outer ring in a similar environment. These patents were filed long before Patent #3,751,953 was filed. Needless to say, we have no interest therefore in obtaining a license from Mr. Lipp.

I am sure that after you have looked into the matter further you will agree with the correctness of our position. I would appreciate the courtesy of your acknowledging this fact promptly.

Sincerely yours,

Dexter C. Tight
Vice President and
General Counsel

→ bcc. Mark Lothrop
Ernest Schlage

Exhibit 6.3 (cont.)

3,751,953

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- second end to bear against the annular flange, and said inner ring having an outer surface,
- B. an outer ring loosely on said inner ring and of an axial length no greater than the axial length of the inner ring, and said outer ring having an inner surface overlaying said outer surface of said inner ring along their respective axial lengths and in close adjacent relationship; and
- C. means to confine said outer ring on said inner ring to rotational movement only.
2. A protective lock ring assembly as defined in claim 1 wherein said outer ring includes a beveled outer periphery providing the form of an outwardly extending

truncated cone.

3. A protective lock ring assembly as defined in claim 1 wherein said means to confine comprises a reduced external diameter inner end portion on said inner ring forming a shoulder a predetermined distance inwardly from the inner end thereof and a reduced internal diameter inner end portion on said outer ring forming a shoulder a slightly shorter distance inwardly from the inner end thereof.

4. A protective lock ring assembly as defined in claim 3 wherein said inner and outer rings are formed with thick walls of a hardened steel.

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Exhibit 6.4

January 22, 1976

File: 5894-Infringement LLL

Schlage Lock Company
P. O. Box 3324
San Francisco, CA 94119

Attention: Dexter C. Tight, Esq.

Dear Ted:

I note a meeting with you in my office on January 19, 1976 concerning alleged infringement of the Newman U.S. patent 3,751,953, according to a letter of December 22, 1975 to Schlage Lock Company from Weinsoff, Weinsoff & Carney, P.A. of Miami, Florida.

Incidentally, a check of Martindale-Hubbell lists no such firm in Miami, and a check of Shepard indicates the patent has never been litigated.

I have been furnished with a large number of patents, prints, examples and publications by Ernest and have had technical advice from him and from Vern and Hollis.

A detailed review of each item with special regard to Schlage's production devices (as shown in Schlage drawing prints B 502-671 and B 502-672 and catalog page B/5) and to all claims of the Newman patent convinces me that the patent is not infringed by Schlage. Without repeating here the detailed analysis I have made, I point out generally that all the Newman patent claims are limited or restricted to a lock ring assembly for a cylinder lock in which a ring is rotatable around the lock. The Schlage production ring for a cylindrical lock is not rotatable around the lock. This important physical and functional difference makes the Newman patent claims inapplicable to and not infringed by the Schlage construction.

Further, a careful review of earlier patents demonstrates that the substance or gist of the Newman patent appears in patents filed earlier than Newman's patent was filed. The alleged invention of Newman was known by others before Newman so his patent does not comply with the law and is invalid.

Exhibit 6.4 (cont.)

Schlage Lock Company
Page 2
January 22, 1976

The Patent and Trademark Office overlooked some earlier patents and so improperly issued the Newman patent. For example, Schlage's Marron Kendrick patent 3,593,548 filed May 5, 1969 and issued July 20, 1971 (Newman filed February 22, 1972), shows in Figures 13 and 14 a cylinder lock having an outer ring 116 which, when "... an excessive force..." is applied, "... simply free wheels and cannot produce any disruption of or damage to the lock unit." (patent, column 5, lines 9-39). Kendrick made the same invention for the same purpose and functioning the same way as Newman and did so long before Newman.

As another example, Emhart Corporation's Gerlach patent 3,699,788 (filed February 12, 1971), shows in Figure 11 a cylindrical lock 84 surrounded by a guard plate 96 and lock cylinder cover 82, both of hardened steel (patent, column 11, lines 27-29) which acts to frustrate application of "... twisting violation forces and sawing violation forces." (patent, column 12, lines 59-60) because there-upon "...the lock cylinder cover 82... will merely rotate with the twisting force and not effect (sic) the underlying guard plate 96 or lock cylinder frame 84..." (patent, column 12, lines 61-63). Thus, Gerlach also made the same invention operating in the same way for the same purpose before Newman.

If Schlage should be sued for violation of the Newman patent, it could be proved that the Newman claims do not cover or are not infringed by the Schlage construction and that, because of the earlier Kendrick and Gerlach patents, overlooked by the Patent and Trademark Office, the Newman patent is invalid.

I suggest you inform your correspondent of your position and of some or all of your reasons therefor. That should dispose of this matter; but if you are sued I should certainly expect you to win, for the reasons above. If you or your customers should be harassed in future, you may well sue the Newman patent owner by a declaratory judgement suit, based on the reasons above, and have the Newman patent declared not infringed and invalid.

This study could be substantially extended but should be adequate for present, practical purposes.

Exhibit 6.4 (cont)

Schlage Lock Company
Page 3
January 22, 1976

Copies of the patents mentioned are enclosed.

Sincerely yours,

for
Lothrop & West

ml/cm
Enclosures:
3,751,953
3,699,788
3,593,548
bcc w/encs Mr. Ernest L. Schlage

claimed a lock ring assembly for a cylinder lock around which a ring was rotatable, whereas the Schlage design had a ring that was not rotatable. Hence, the Newman claims were inapplicable and not infringed by the Schlage construction.

Following the above discovery and with Mr. Lothrop's assurance, Schlage Lock Co. replied to Weinsoff, Weinsoff and Carney telling them that their patent (the Newman patent) was not infringed and since the feature of a rotatable outer ring was not new, Schlage Lock Co. had no interest in obtaining a manufacturing license from their client (Exhibit 6.5).

It is of interest to note that to date (7/12/76), there has been no response from Weinsoff, Weinsoff and Carney.

EPILOG

A period of 2 years 9 months had elapsed from the time Mr. Lothrop first received instructions from Schlage Lock Co. to the date the patent was finally issued. This interval is typical for patents of this type.

During this period a total of \$3600.00 was spent by Schlage Lock Co. in pursuit of patents in the U.S., Canada, Argentina, Australia and Mexico. Patents in Australia and Canada were issued in 1974. While patents were issued in Mexico and Argentina in 1972, of the total, \$1200.00 was involved in the U. S. patent. One thousand dollars of the \$1200.00 was spent on the application. Mr. Lothrop indicates that inflation has taken a heavy toll in the patent process.

Drawings that were approximately \$30.00 each in 1969 would run about \$75.00 each in 1975. Lawyers' fees have not skyrocketed as other costs however. The 1976 rates are currently around \$100.00 +/-hr.

Those costs may seem high to an individual "inventor", but the value of a patent is clearly shown by the infringement allegations of this case. Had Schlage Lock Co. not been able to show that they did not infringe the Newman patent, an uncomfortable situation for Schlage Lock would have resulted.

In response to the often asked question "So what good is a patent anyway?" Mr. Lothrop states, "The value of a patent depends upon two things; one is the correctness and legal sufficiency of the patent document itself. The other is the market or commercial worth of the underlying invention the patent covers. A patent is something like a deed to real estate. The deed itself needs to be

legally proper and adequate, but the ultimate worth or value depends largely upon the worth or value of the land the deed identifies. There can be a technically sound patent on an invention nobody cares about as well as a poorly written patent on an invention having a substantial demand. In neither of those cases can there be much ultimate value, since one or the other of the two factors has but little worth. But a well done patent on an invention in demand has a substantial value, because the patent holder can legally and properly keep his competition at bay. In practice there are many technically good patents on inventions nobody is much interested in. This may be because of lack of exploitation or because of untimeliness or because of the usual market factors relating to any property. But among all of the patents there are some that are well done and that relate to timely inventions well exploited and in great demand. When that occurs the corresponding patent is valuable indeed."

As a final note Mr. Lothrop offers some advice for the individual inventor. "Make a clear, dated record of what the invention is about and what is its use. Then, if he wishes to pursue the patent aspect, engage a good local patent lawyer. It's important that letters aren't the only contact between attorney and client."

Exhibit 5.4

United States Patent

[11] 3,593,548

[72] Inventor **Marven Kendrick**
Atherton, Calif.
[21] Appl. No. **821,673**
[22] Filed **May 5, 1969**
[45] Patented **July 20, 1971**
[73] Assignee **Schlage Lock Company**

[56] **References Cited**
UNITED STATES PATENTS

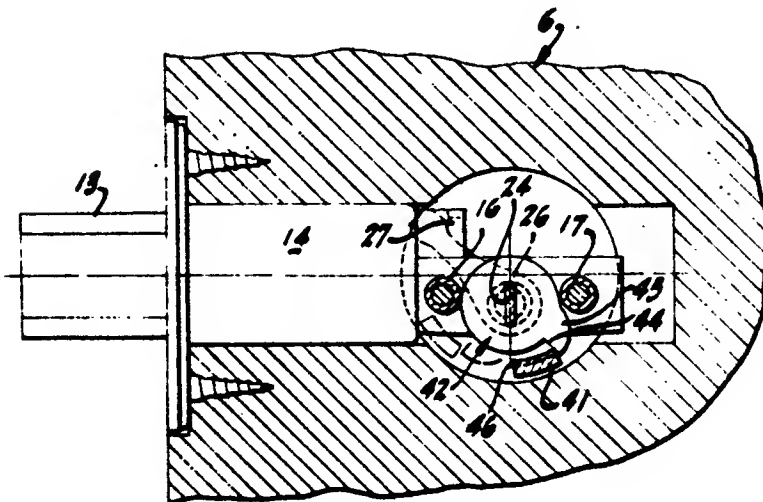
1,048,628 12/1912 Woolsey..... 70/129
1,813,240 7/1931 Joseph..... 70/129

Primary Examiner—Marvin A. Champion
Assistant Examiner—Albert G. Craig, Jr.
Attorney—Lothrop & West

[54] **EXTERIORLY OPERABLE LOCK BOLT**
7 Claims, 15 Drawing Figs.

[52] U.S. Cl..... 70/129,
292/140, 292/336.3, 292/336.5
[51] Int. Cl..... E05b 63/00,
E05b 33/00, E05c 1/06
[50] Field of Search..... 292/140,
143; 70/129, 134

ABSTRACT: A lock bolt mounted on a door panel can be projected and retracted by an inside thumb turn or by an outside key or both and can also be projected but not retracted by a finger-operated, outside movable piece.



LOTHROP & WEST

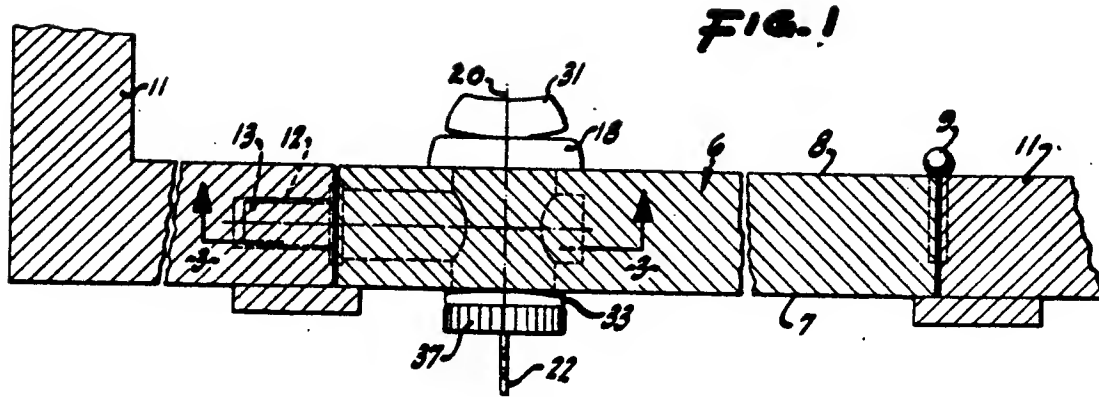
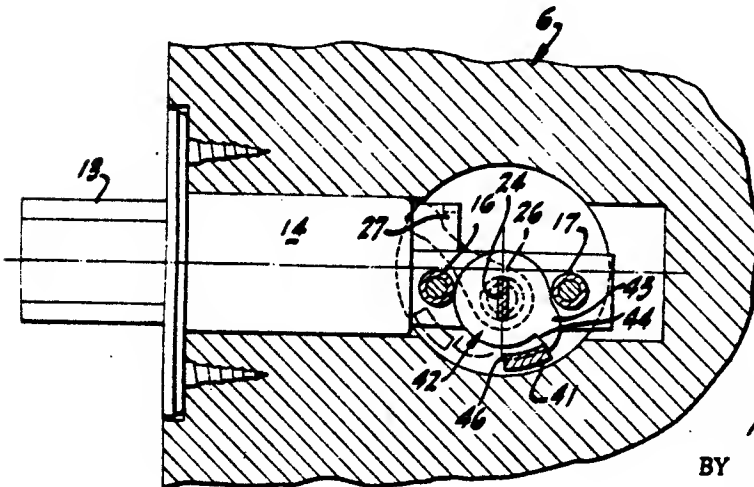
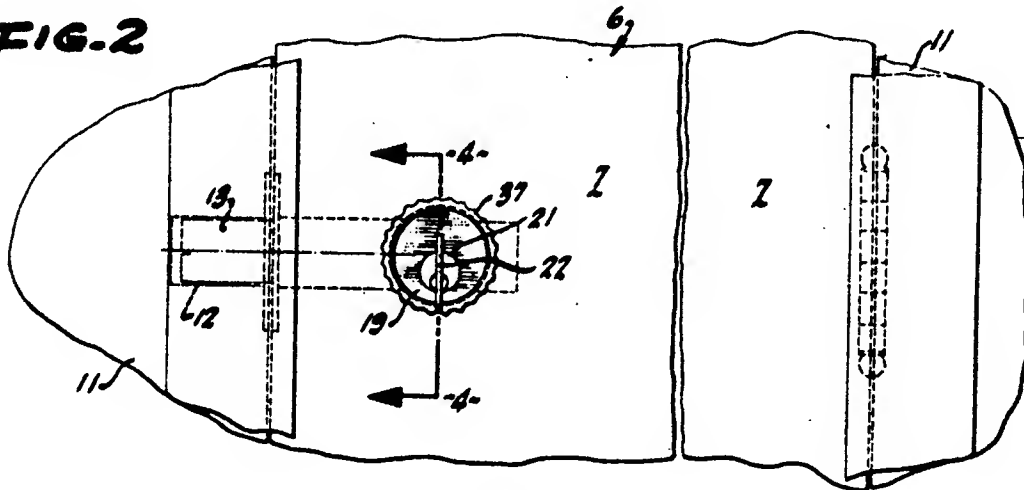
REC'D. SEP 9 1971

FILE: 5294-448

PATENTED JUL 20 1971

Exhibit 5.4 (cont.)

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**FIG. 2****FIG. 3**

INVENTOR
HARRON KENDRICK

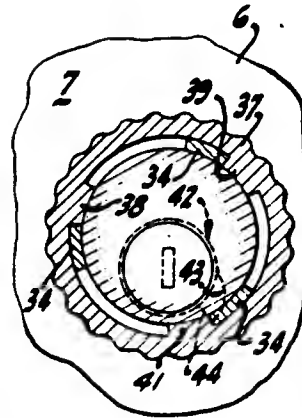
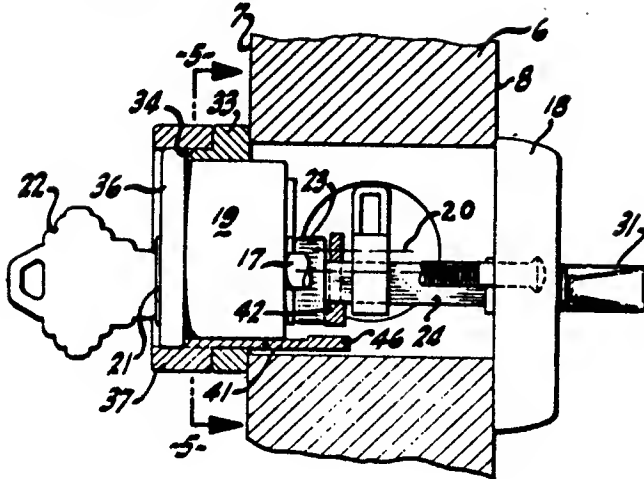
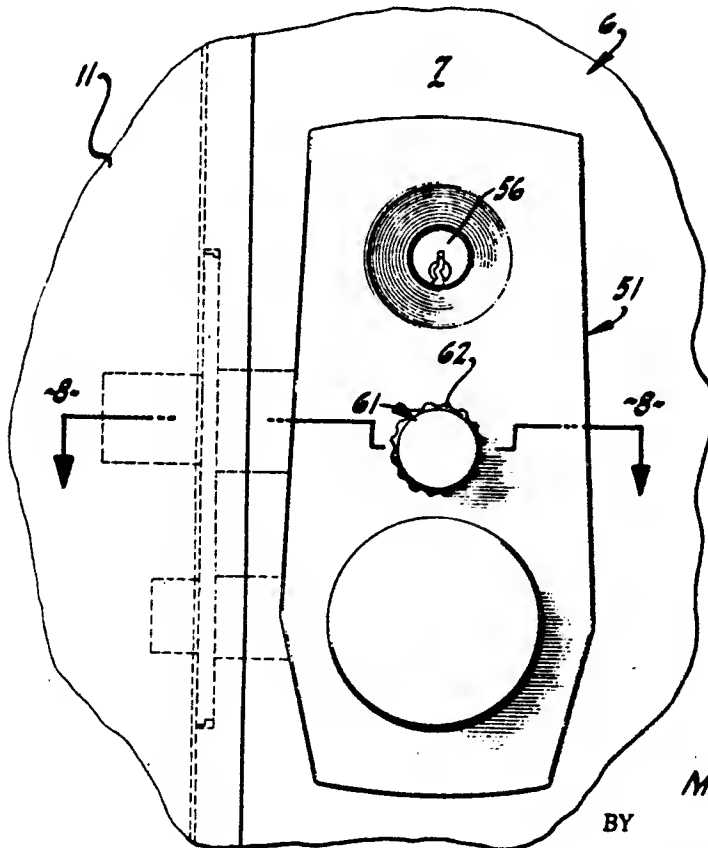
BY

Lothrop & West
ATTORNEYS

Exhibit 5.4 (cont.)

PATENTED JUL 20 1971

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FIG. 4**FIG. 5****FIG. 6**

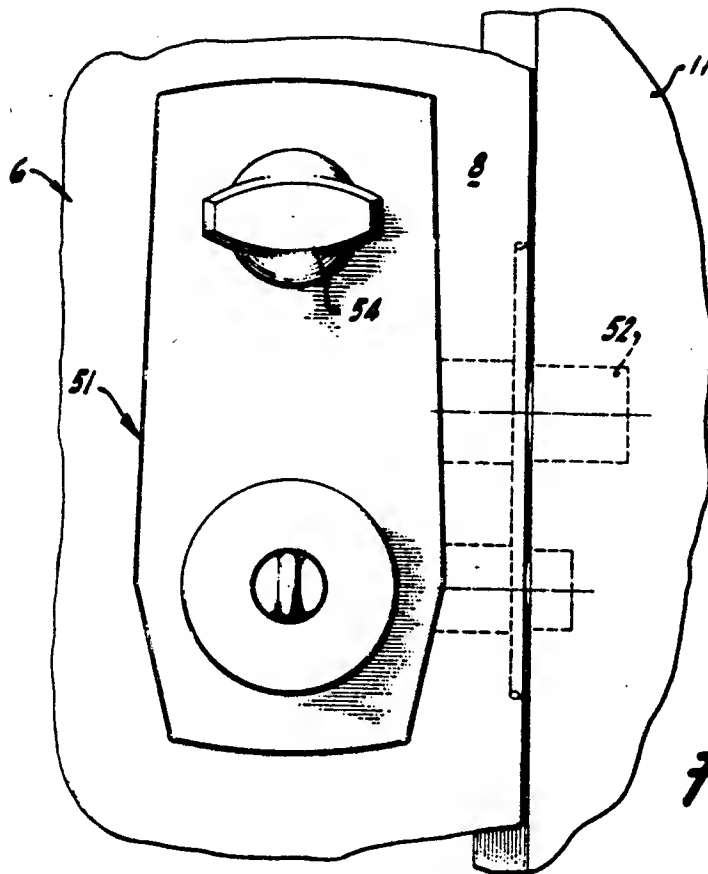
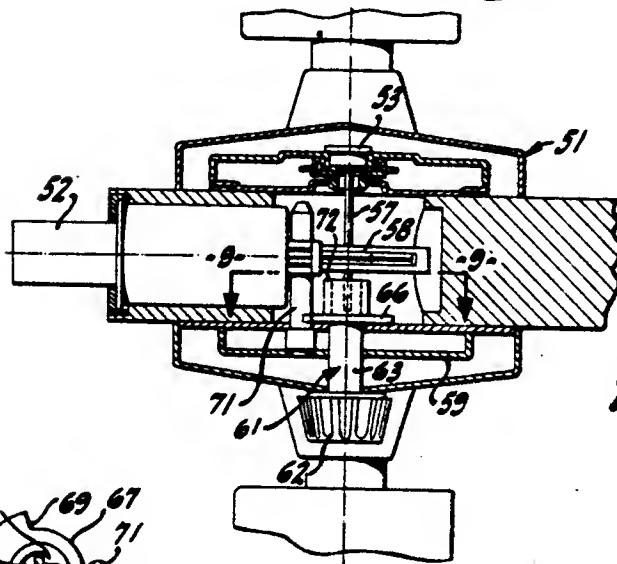
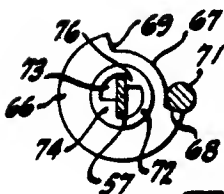
INVENTOR
MARRON KENDRICK

BY

Lothrop & West
ATTORNEYS

PATENTED JUL 20 1971

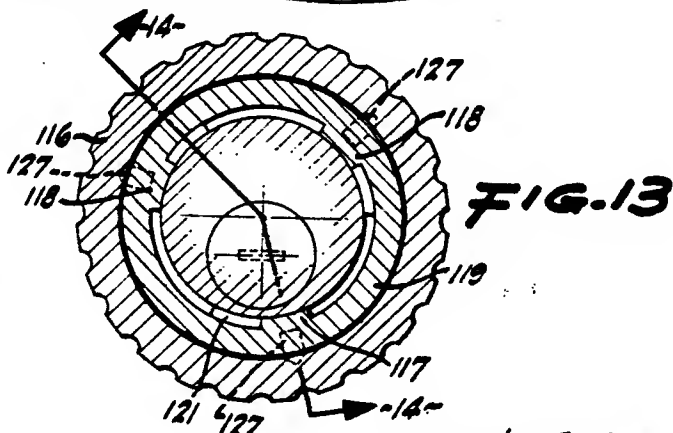
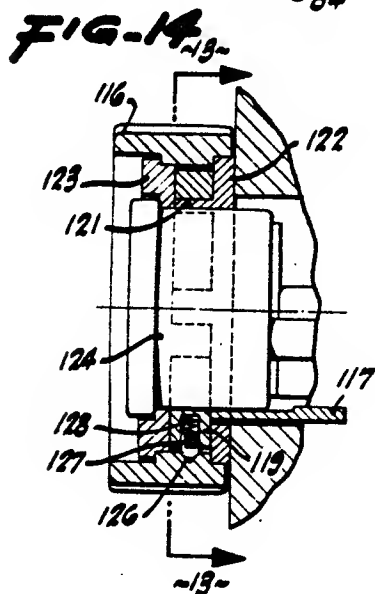
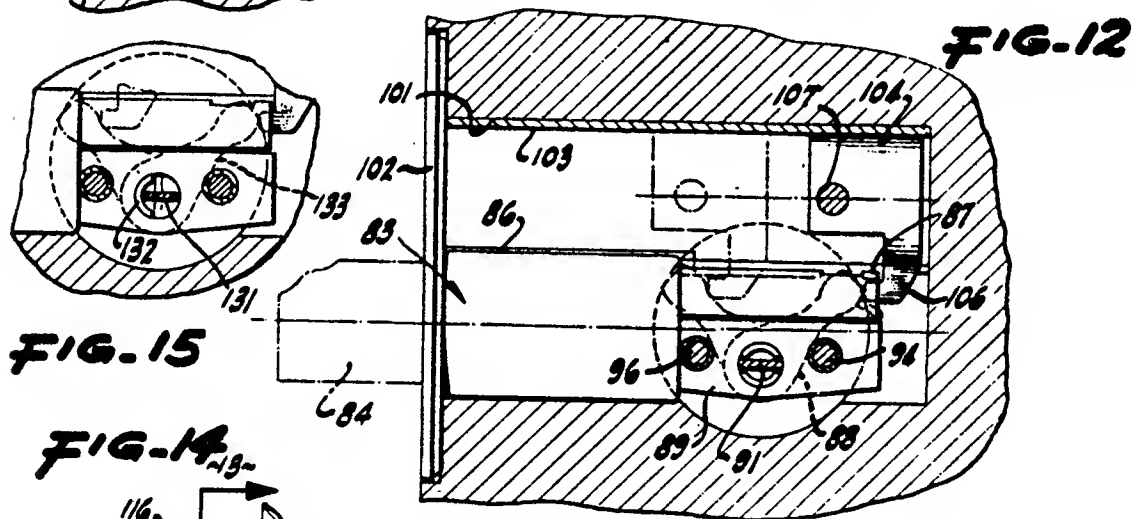
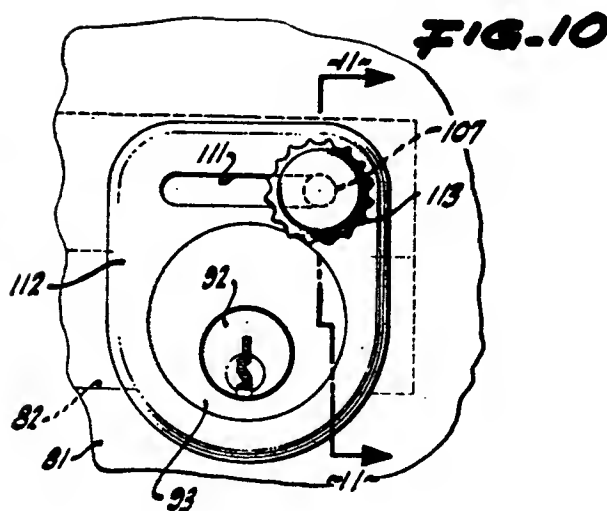
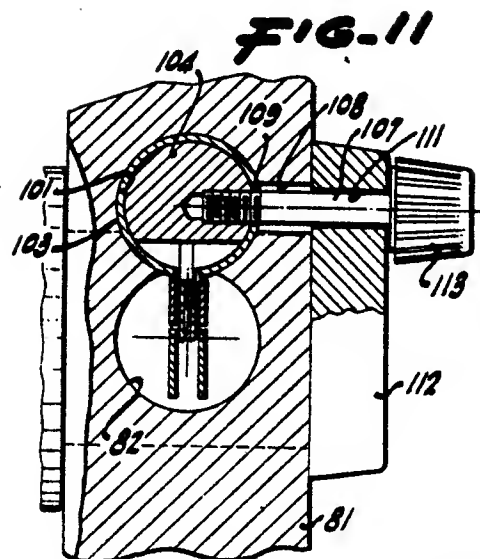
3,593,548

**FIG-7****FIG-8****FIG-9**

INVENTOR
 MARRON KENDRICK
 BY
Lothrop & West
 ATTORNEYS

PATENTED JUL 20 1971

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INVENTOR
MARRON KENDRICK
BY
Lothrop & West
ATTORNEYS

3,593,548

1

EXTERIORLY OPERABLE LOCK BOLT

Reference is made herein to "outside" or "exterior" and "inside" or "interior." This is primarily for distinguishing between the two sides of a lock unit and corresponds to the usual usage in most practical installations but is not to be considered as a limitation since in some instances there may be different or contrary designations of the sides of the lock unit.

This application is related in part to a high-security lock mechanism of a sort disclosed in U.S. Pat. No. 3,390,558, issued to Tornoe et al. on July 2, 1968 and is related in part to U.S. Pat. No. 1,846,364 issued Feb. 23, 1932 to W. R. Schlage, both patents being assigned to Schlage Lock Company, the assignee of this application.

Disclosed in the Tornoe et al. patent is a double plunger lock unit, known in commerce as Schlage Lock Company's "G" lock unit designed for mounting on a swinging door panel. This lock unit is provided with the usual spring-projected latchbolt controlled by exterior and interior knobs. Likewise this lock unit is provided with a long lock bolt that can be projected and retracted by a key on the exterior of the structure. Also, the lock unit can be projected and retracted by a thumb turn on the interior of the structure and can be retracted by the interior knob.

Disclosed in the W. R. Schlage patent is a single plunger lock unit, known in commerce as Schlage Lock Company's "B" lock unit, provided with a reciprocable dead bolt movable between projected and retracted positions by an exterior actuator and an interior actuator.

Although both of these types of lock units have had commercial success, it has developed that some users do not take advantage of the security available by throwing the dead bolt from the exterior side, because this operation requires the finding and insertion of a key and key manipulation. That is, on leaving a room and closing the door from the outside, the user refrains from inserting his key into the exteriorly available lock plug and from rotating the key and plug so as to project the long lock bolt for full security. Many users consider this key use an annoyance and do not take advantage of the extra lock bolt protection.

It is therefore an object of the invention to provide on the exterior of the lock unit a means readily operable without a key to make the maximum security of the lock unit quickly and more easily available.

Another object of the invention is to provide, either in connection with the high-security lock mentioned or with other lock units, a lock bolt which can be projected exteriorly with or without a key but which can be retracted exteriorly only with an appropriate key.

Another object of the invention is to provide a lock bolt which can project readily from the exterior but which cannot be retracted from the exterior without a proper key.

Another object of the invention is in general to provide an improved lock bolt manually projectable on the exterior but not manually retractable on the exterior.

A further object of the invention is to provide an exteriorly projectable lock bolt which affords a cost-saving construction.

Another object of the invention is in general to provide an improved lock unit.

Other objects together with the foregoing are attained in the forms of the invention described in the accompanying description and illustrated in the accompanying drawings, in which:

FIG. 1 is a cross section on a horizontal plane through a room wall containing a door carrying an exteriorly operable lock bolt of the sort shown in the above-noted W. R. Schlage patent and constructed pursuant to the invention, portions of the showing being diagrammatic and other portions being removed to reduce the size of the figure;

FIG. 2 is an exterior elevation of the structure shown in FIG. 1;

FIG. 3 is a cross section, the plane of which is indicated by the line 3-3 of FIG. 1;

FIG. 4 is a cross section, the plane of which is indicated by the line 4-4 of FIG. 1;

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FIG. 5 is a detail showing the parts in cross section on a plane indicated by the line 5-5 of FIG. 4;

FIG. 6 is a view comparable to FIG. 2 but illustrating a form of exteriorly operable lock bolt incorporated with the high-security lock of the above-mentioned Tornoe et al. patent;

FIG. 7 is a view showing the interior elevation of the structure of FIG. 6;

FIG. 8 is a cross section, the plane of which is indicated by the line 8-8 of FIG. 6;

FIG. 9 is a cross section of a detail, the plane being indicated by the line 9-9 of FIG. 8;

FIG. 10 is a side elevation of a modified form of my invention, showing a lock unit having a straight line bolt projector, portions being broken away;

FIG. 11 is a cross section, the planes of which are indicated by the lines 11-11 of FIG. 10;

FIG. 12 is a cross section on a longitudinal, vertical plane through a door panel having the device as shown in FIG. 10 installed therein, certain parts being shown in side elevation;

FIG. 13 is a detail in cross section, the plane of which is indicated by the line 13-13 of FIG. 14, and showing a modified form of the device of FIGS. 1 to 5, inclusive; and

FIG. 14 is a cross-sectional view of the device of FIG. 13, the planes of section being indicated by the lines 14-14 of FIG. 13; and

FIG. 15 is a fragmentary view like FIG. 12, modified.

In a representative installation chosen solely for description herein and without restricting the many uses that may be made of it, one form of the lock mechanism of my invention is mounted on a swinging door panel 6 having one side 7 on a hall, for example, and is arbitrarily designated the exterior side. The other side 8 is within a room, for example, and is arbitrarily designated the interior side. The door panel is mounted by hinges 9 on a frame in a room wall 11. Opposite the hinges the door frame contains a strike box 12 for the reception of a bolt 13 or plunger reciprocable between a projected position, as shown in FIGS. 1 to 3, and a retracted position approximately flush with the edge of the door 6.

The bolt 13 is mounted on a chassis 14, or support, or base or frame, the bolt construction preferably being comparable to that shown in the above-identified W. R. Schlage patent. The chassis 14 is approximately symmetrical about a central plane and can be considered as bilateral. The chassis has a number of stationary parts associated to support and mount the moving parts of the lock unit and includes post and screw connectors 16 and 17 passing through the door panel to relate to an inside escutcheon 18 and to an outside lock mechanism 19 (FIG. 4) the exterior of which is generally circular-cylindrical about an axis 20.

In the lock mechanism 19 there is a rotatable plug 21 designed to receive a key 22 and having a lost motion connector 23 joining the plug 21 to a flat driver bar 24 extending in the direction of the axis 20. An actuating lever 26 (FIG. 3) has one end nonrotatably connected to the driver bar. The other end of the actuating lever 26 engages an extension 27 of the bolt 13. The extent of travel of the lever 26 is approximately one quarter of a turn during travel of the bolt between the fully projected position thereof and the fully retracted position thereof.

As disclosed in the above-mentioned Tornoe et al. patent, an overcenter spring yieldingly urges the bolt 13 into either its fully projected position or its fully retracted position after the bolt has passed the halfway point in either direction. Since the connector 23 includes lost motion and the lever 26 requires a fractional turn for full operation, rotation of the key 22 for a large part of a turn is effective to move the bolt between fully projected and fully retracted positions. There may be additional lost motion connections in the lock unit, but the motion relationship of the rotatable plug 21 and of the lock bolt 13 is usually approximately as stated.

Mounted to turn with respect to the escutcheon 18 is an interior thumb turn 31 having direct engagement with the driver bar 24. By rotating the thumb turn 31 in the proper directions, the bolt 13 can be manually retracted and projected from the interior side of the panel 6.

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Pursuant to the present invention means distinct from the key 22 are provided for operating the bolt 13 from the exterior side 7 of the door panel. However, this distinct means is effective to operate the bolt 13 in one direction only; that is, solely in the projecting or locking direction. Stated differently, the means specially provided exteriorly of the door panel 6 cannot retract the bolt 13.

Surrounding the lock mechanism 19 is a spacer or escutcheon ring 33. This is a functional and ornamental ring, generally circular in exterior configuration, having a plurality of spaced axially directed extensions 34 projecting therefrom and leaving opening between them. Usually there are three extensions 34 situated to lie just behind the standard rim 36 of the lock mechanism 19. The ring 33 or spacer is held firmly in place when the screw and post connectors 16 and 17 are tightened.

Rotatable with respect to the ring 33 and the rim 36 of the lock mechanism and bearing on the cylindrical outer portions of the extensions 34 is a fluted, finger-actuated turn piece 37. The flutes affording a good hand or finger grip. The turn piece 37 has a plurality; for example, three of axially extending bars 38, 39 and 41 interfitting with the extensions 34 of the ring 33 and extending through the openings between the extensions 34 with considerable lost motion so that the turn piece 37 has a limited rotary movement in either direction.

The bars 38 and 39 are axially relatively short, but the bar 41 is substantially elongated completely to underlie the lock mechanism 19. The bar 41 extends inwardly far enough to engage with the lever 42 mounted on the driver bar 24. The lever 42 includes a disc having a rectangular opening fitting non-rotatably on the flat driver bar and also includes an arm 43 with a radial face 44 projecting into the arcuate path of movement of the bar 41. An enlargement 46 on the arm end improves engagement or abutment with a widened tip on the lever 42.

With this arrangement and when the bolt 13 is in projected position (FIG. 3), the enlargement 46 on the bar 41 on the turn piece 37 can rotate through a limited range, all outside the then position of the rotatable arm 43. Rotation of the turn piece 37 as limited by the stationary extensions 34, then has absolutely no effect to retract the lock bolt 13 and simply results in lost motion. However, when the lock bolt 13 is in retracted position, the face 44 of the lever arm 43 lies immediately adjacent the enlargement 46 of the bar 41. Rotation of the turn piece 37 counterclockwise in FIG. 3 or FIG. 5, immediately engages the bar 41 and the lever 42 and rotates the lever in a corresponding counterclockwise direction into the position shown by solid lines in FIGS. 3 and 5. This is far enough to move the bolt 13 from its fully retracted position to its fully projected position, the overcenter spring assisting the latter part of the travel.

A user can readily project and retract the latchbolt either by the thumb turn 31 on the interior or by the key 22 on the exterior. In addition, by rotating the turn piece 37 on the exterior in a counterclockwise direction as seen in FIG. 2, the user may with his fingers and without a key fully project the lock bolt 13. But if he tries on the exterior to retract the projected bolt 13 by rotation of the turn piece 37 in an opposite direction his action will avail him nothing. He simply takes up lost motion. All he can do exteriorly to retract the bolt 13 is to use a proper key 22 in the customary fashion. This form of the invention thus provides a lock bolt which can readily be projected from the exterior without the use of a key but which cannot be retracted from the exterior without the use of a key.

In the lock installation illustrated in FIGS. 6 to 9 inclusive, the lockset 51 is substantially as disclosed in the above-identified Tornoe et al. patent. The lockset includes a lock bolt 52 and an actuating mechanism 53 operable by an interior thumb turn 54 and by an exterior lock plug 56 rotated by a proper key. The actuating mechanism 53 rotates a driver bar 57 engaging the operating mechanism 58 for the bolt 52 in the standard manner.

Pursuant to this invention, there is preferably provided on the bilateral lock chassis 59 a turn piece 61 disposed on the

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exterior side of the lock unit and including a fluted knob 62 fast on the end of a tube 63. The tube bears on the lock unit chassis so that the turn piece 61 can readily be rotated. Within the chassis 59 there is provided a flange 66 having a cutout portion 67 forming stops 68 and 69 positioned to abut with a frame rod 71. In this example, the turn piece 61 can operate through approximately a quarter turn.

As shown in FIG. 9, the tube 63 is enlarged adjacent the flange 66 to provide a hub 72 with a lost motion recess 73 therein designed to encompass the projecting end of the driver bar 57. The hub recess has interior projections 74 and 76 providing driver walls with lost motion spaces between them allowing some angular free motion.

In this construction the bolt 52 is operated in the customary way by the standard parts provided, but when the turn piece 61, as seen in FIG. 6, is rotated in a clockwise direction there is only lost motion between the projections 74 and 76 and the driver bar 57. Consequently such rotation of the turn piece produces no effect on the projected bolt 52. However, should the bolt be in retracted position, then rotation of the turn piece in the proper direction causes the driver walls of the projections 74 and 76 to engage the adjacent sides of the driver bar 57, to rotate the driver bar and thus to project the lock bolt 52 fully.

The full security of the high-security lock is obtained by a person on the exterior of the door simply by rotating the turn piece 61 in a counterclockwise direction (FIG. 6) and thus, without the use of a key, fully projecting the bolt. The lock remains secure on the exterior since a subsequent clockwise rotation of the turn piece will not withdraw the bolt. Exteriorly, it is necessary to utilize a key in the plug 56 to produce an unlocking action.

The forms of lock units in FIGS. 1 through 5 and in FIGS. 6 through 9 operate in a similar fashion to project, but not retract, a lock bolt by rotating an operating member on the exterior of the door and without the necessity of using a key.

The exterior bolt operating member need not be rotary. As shown in FIGS. 10 through 12, the environment is the same as described in connection with the FIGS. 1 through 5 embodiment. A door panel 81 has an edge bore 82 receiving a bolt assembly 83 of the sort shown in the W. R. Schlage patent, above noted. The assembly includes a bolt 84 reciprocable in a housing 86. The bolt has an operating extension 87 engageable by the end of a lever 88 rotatably mounted in a housing extension 89. A driver bar 91 turned by a key-actuated plug 92 on the exterior of the door panel operates the lever 88 to project and to retract the bolt 84. The plug 92 is mounted in a body 93 having mounting posts 94 and 96 extending through and interrelated with the housing extension 89 in the usual way. Key rotation projects and retracts the plunger or bolt 84 from the exterior as is customary.

Pursuant to this form of the invention, the door panel 81 has a second edge bore 101 parallel to the bore 82 and intersecting or breaking out into the bore 82 to provide a single chamber. The end of both bores 82 and 101 is closed by a plate 102 suitably secured in place and solid except for fastening openings and an opening to pass the bolt 84. Within the bore 101 is a lining sleeve 103 of circular cylindrical configuration longitudinally open at the bottom.

A slug 104 is reciprocable within the sleeve 103 and carries a depending prong 106 shaped to extend into the bore 82 and to project through the open end of the bolt extension 87 into abutment with the upper portion of the lever 88. A rod 107 screwed into the slug 104 extends through a slot 108 in the door panel 81 and through a corresponding slot 109 in the sleeve 103 and also through a slot 111 in an escutcheon plate 112 encompassing the body 93 and held against the door panel. An operating knob 113 is situated on the end of the rod 107 and is preferably contoured for easy finger operation.

To project the bolt 84 from the exterior without the use of a key, the user need merely move the knob 113 from right to left, as seen in FIG. 10. Knob motion correspondingly moves the slug 104 so that the prong 106 abuts the lever 88. The

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straight line knob and slug motion causes rotation of the lever and corresponding projection of the bolt. However, when the bolt is in projected position, movement of the exterior knob 113 from left to right, in FIG. 10, merely withdraws the prong 106 from contact with the lever, producing lost motion but no bolt retraction. When the bolt is otherwise moved to retracted position, the parts are restored to the relationship shown in FIG. 12.

In some instances, vandals try to force and incapacitate lock units of the sort shown in FIGS. 1 through 5, for example, by applying a wrench to the circular turn piece 37 and rotating the turn piece hard enough to break some of the interior parts in the hope that the lock unit will thereby be released. To preclude this misuse and damage, the previously described arrangement, as especially shown in FIGS. 4 and 5, may be augmented, as shown in FIGS. 13 and 14, by indirectly coupling an exterior, fluted actuating ring 116 to an actuating bar 117, corresponding to the bar 41. The bar 117 and related short projections 118 extend from a detent ring 119 and are interspersed with similar short projections 121 extending from a bearing disc 122 lying against the door panel. An outer bearing ring 123 surrounds the customary body 124 and serves as a support for rotation of the ring 116.

At intervals on the interior of the ring 116 there are depressions 126 engageable by detent pins 127 reciprocally lodged in the detent ring 119 and urged radially outward by springs 128 exerting a predetermined force. This force is sufficient so that all normal motions of the rings 116 and 119 to operate the lock bolt take place in a unitary manner without lost motion. However, should an excessive force be applied, particularly after the interior parts have abutted against stops of have reached the limit of their movement, then further rotation of the outer ring 116 merely produces depression of the detent pins and does not disturb the interior structure. That is, this construction limits the amount of torque that can be applied to the interior workings of the lock unit by the ring 116 so that the outer ring simply freewheels and cannot produce any disruption of or damage to the lock unit.

While a key is usually arranged to provide both projection and retraction of the lock bolt, there are instances in which the key may be effective only as a retracting device. This is arranged, as shown in FIG. 15, by modifying the key associated structure. As asymmetrical driver bar 131, similar to the driver bar 91, engages a cutaway semicircular hub 132 of a lever 133 similar to the lever 88. The hub 132 and the bar 131 thus provide a lost motion connection. When the hub 132 is rotated counterclockwise (in FIG. 15) through a quarter turn, the driver bar is undisturbed. That is, the bolt may be manually projected without involving the key mechanism. When the bolt is in projected position, rotation of the key mechanism in a clockwise direction (in FIG. 15) causes the driver bar 131 to contact the then adjacent hub 132 of the lever 133 and, upon a quarter turn rotation, to retract the bolt. In this way there is provided a lock device in which the bolt projection is by a finger operation only and in which the bolt retraction is by key operation only.

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While reference has been made to key operation of the driver bar 131, the actuation of that bar can be by a finger turn so that the bolt projection only is by one finger turn and the bolt retraction only is by another finger turn.

The key operation is usually on the exterior side of the door panel but sometimes, for example, in a perimeter door of a warehouse, the key operation may be on the interior side and the finger operation may be on either or both sides.

What I claim is:

1. An exteriorly operable lock bolt for mounting on a panel having an interior side and an exterior side comprising a chassis adapted to be connected to said panel, a bolt mounted on said chassis to project and retract, first means on said chassis for projecting and retracting said bolt, said first means including a lock mechanism having an axis, a driver bar extending from said lock mechanism in the direction of said axis, means for connecting said driver bar and said bolt, and second means accessible on the exterior side of said panel for only projecting said bolt, said second means including a lever connected to and extending radially from said drive bar and movable in an arcuate path, a turn piece surrounding said lock mechanism, means for mounting said turn piece for rotation about said axis relative to said lock mechanism, and a bar fixed on said turn piece and extending in an axial direction alongside said lock mechanism and in the path of said lever on one side thereof.
2. An exteriorly operable lock bolt as in claim 1 in which said axially extending bar is related to said lever by a lost motion connection.
3. An exteriorly operable lock bolt as in claim 1 in which said second means includes a stop for limiting the rotation of said turn piece.
4. An exteriorly operable lock bolt as in claim 1 in which said lever in said second means is a rotary member, an annular escutcheon ring surrounds said lock mechanism and has an opening in the annular portion thereof, and said bar in said second means extends through said opening and into a lost motion engagement with said rotary member.
5. An exteriorly operable lock bolt as in claim 1 in which said means for connecting includes a member mounted to rotate on said chassis through approximately a quarter of a turn and said axially extending bar is mounted to move on said chassis into engagement with one side only of said lever.
6. An exteriorly operable lock bolt as in claim 5 in which said axially extending bar is mounted for rotation about the axis of said lock mechanism.
7. An exteriorly operable lock bolt comprising a bilateral chassis adapted to be mounted on a door panel, a bolt mounted on said chassis to project and retract, a key-actuated device on one side of said chassis, first means connecting said key-actuated device to said bolt for projecting and retracting said bolt, said first means including an overcenter spring for urging said bolt into either its fully projected position or its fully retracted position after said bolt has passed the halfway point in either direction, and second means on said one side of said chassis adjacent said key-actuated device for only projecting said bolt at least through said halfway point.

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